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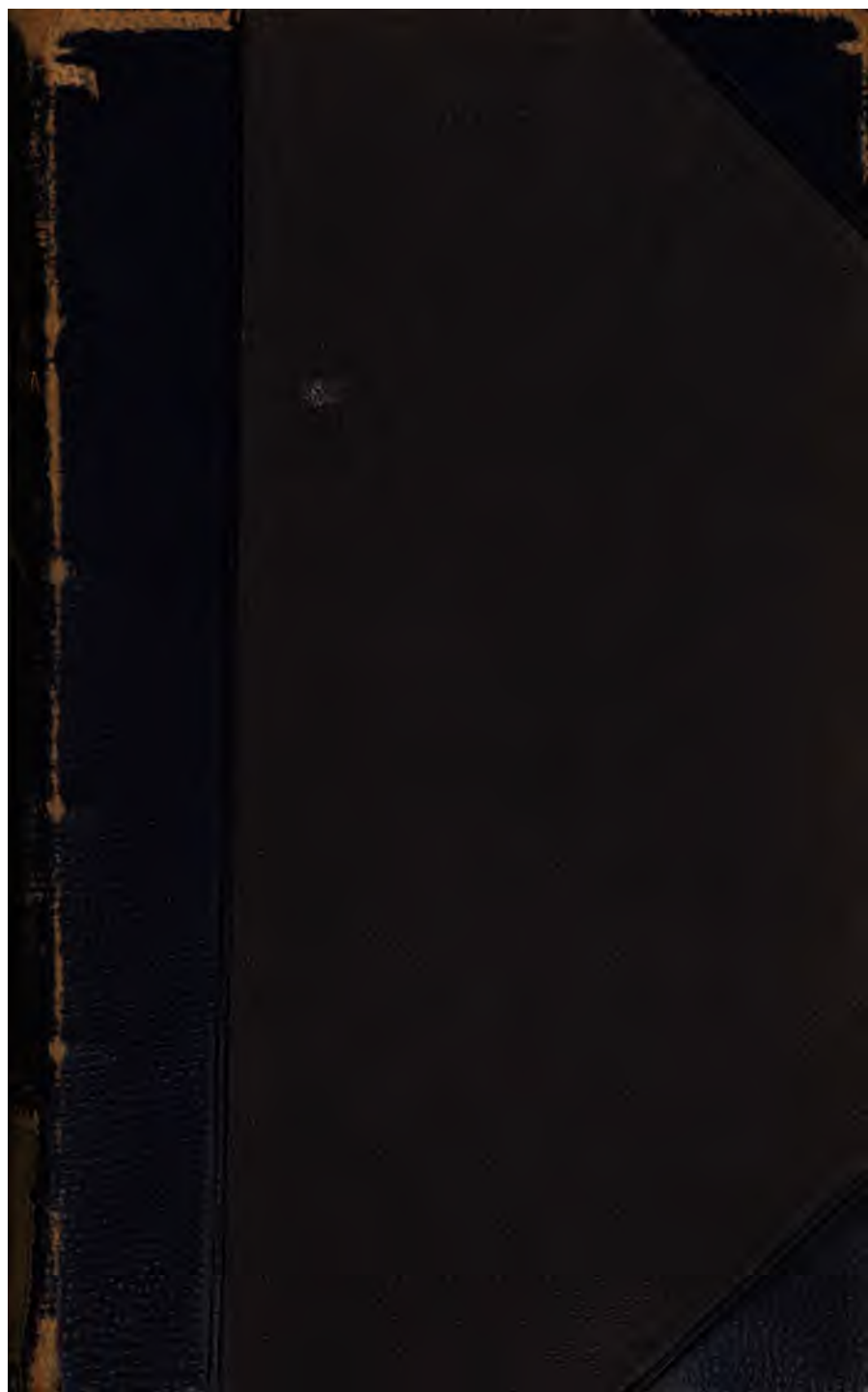
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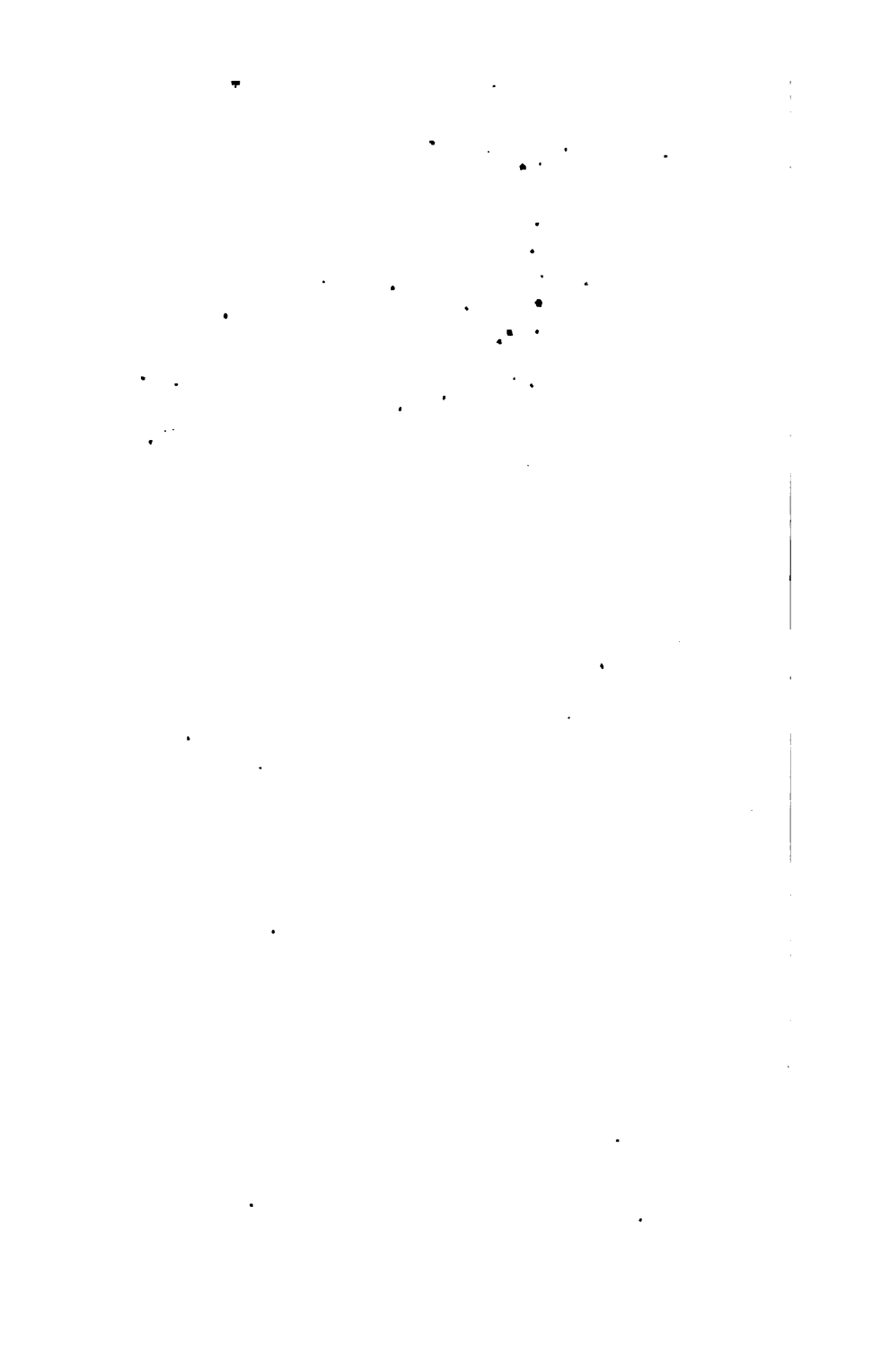
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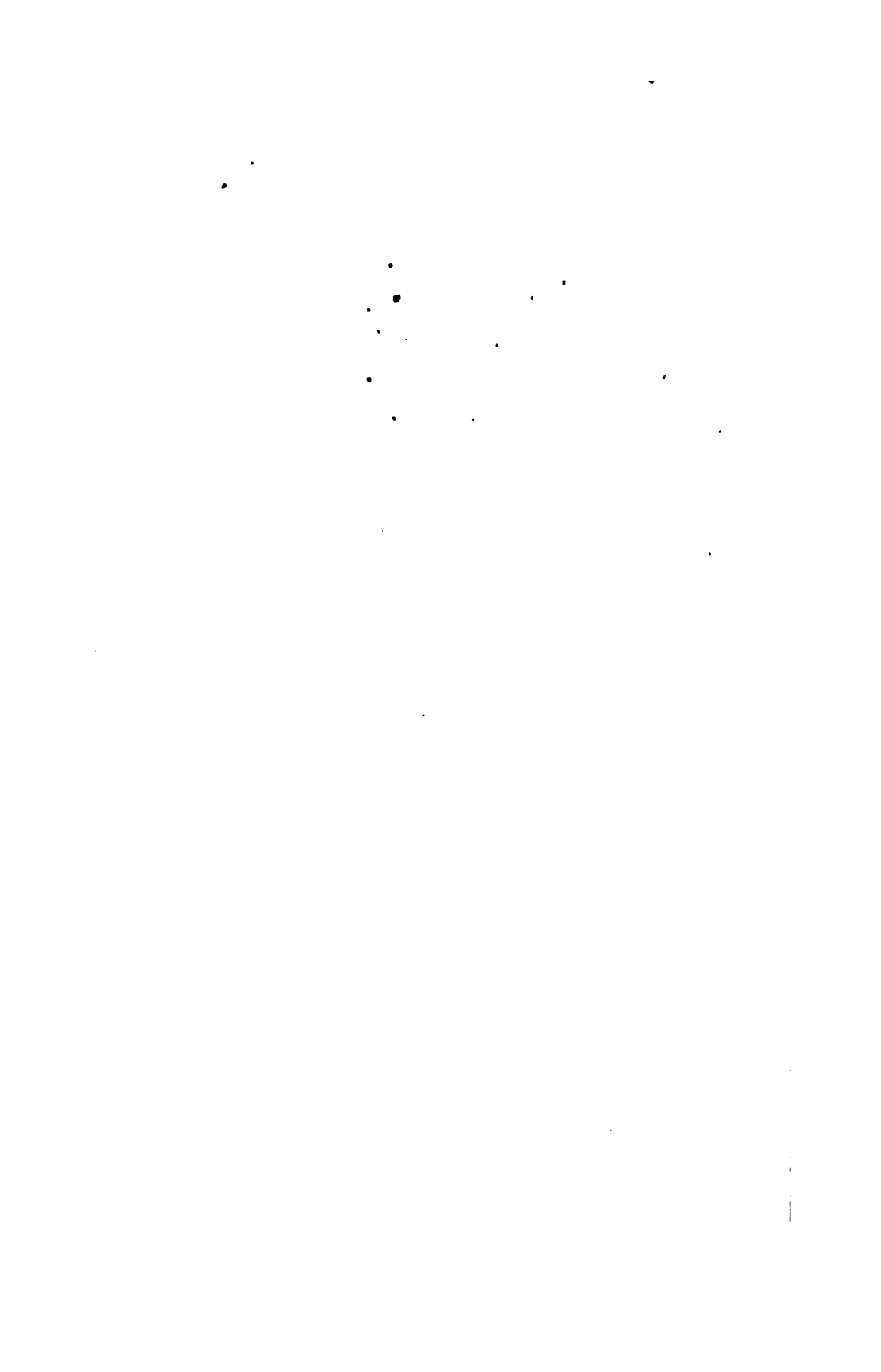


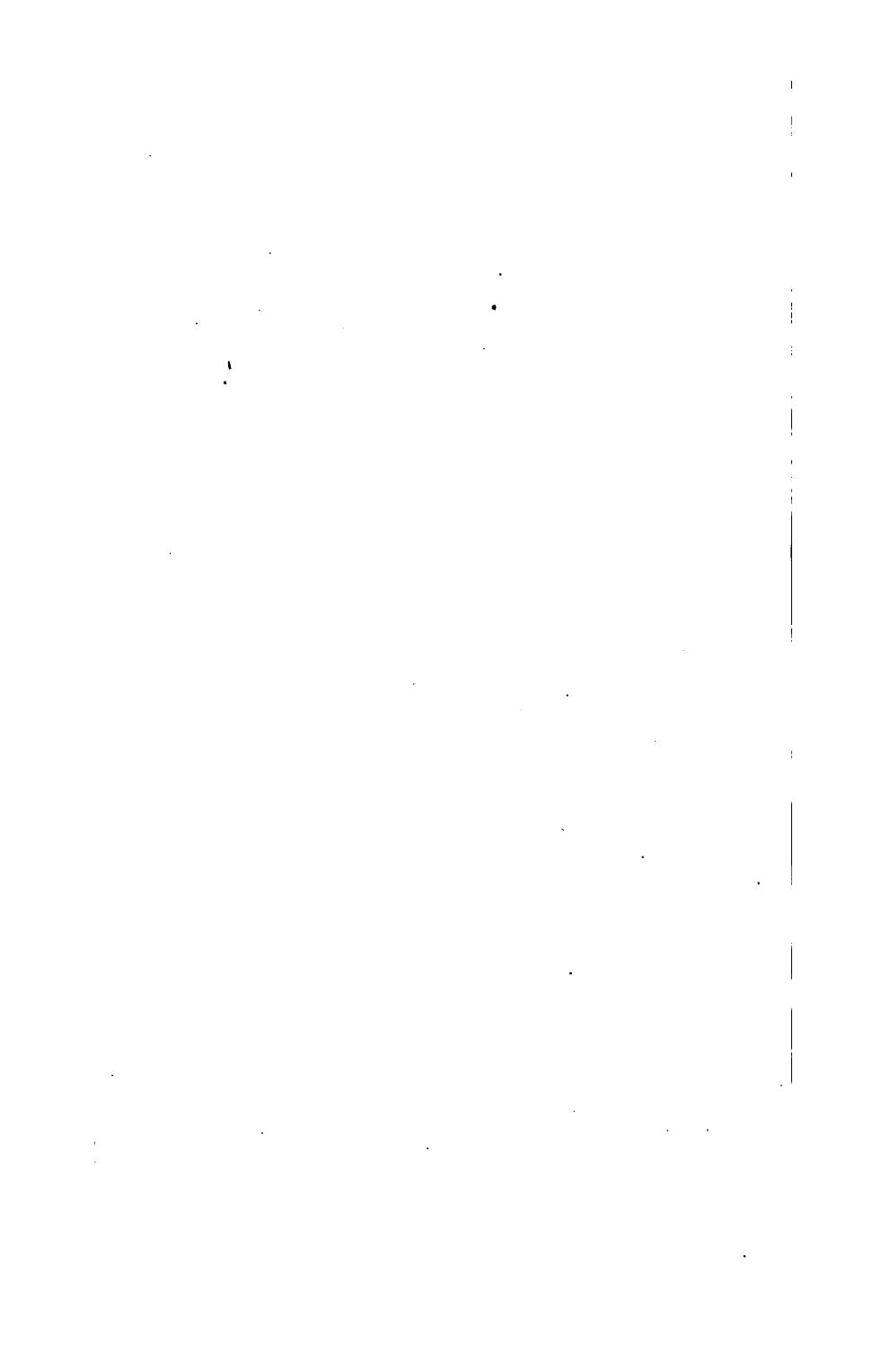


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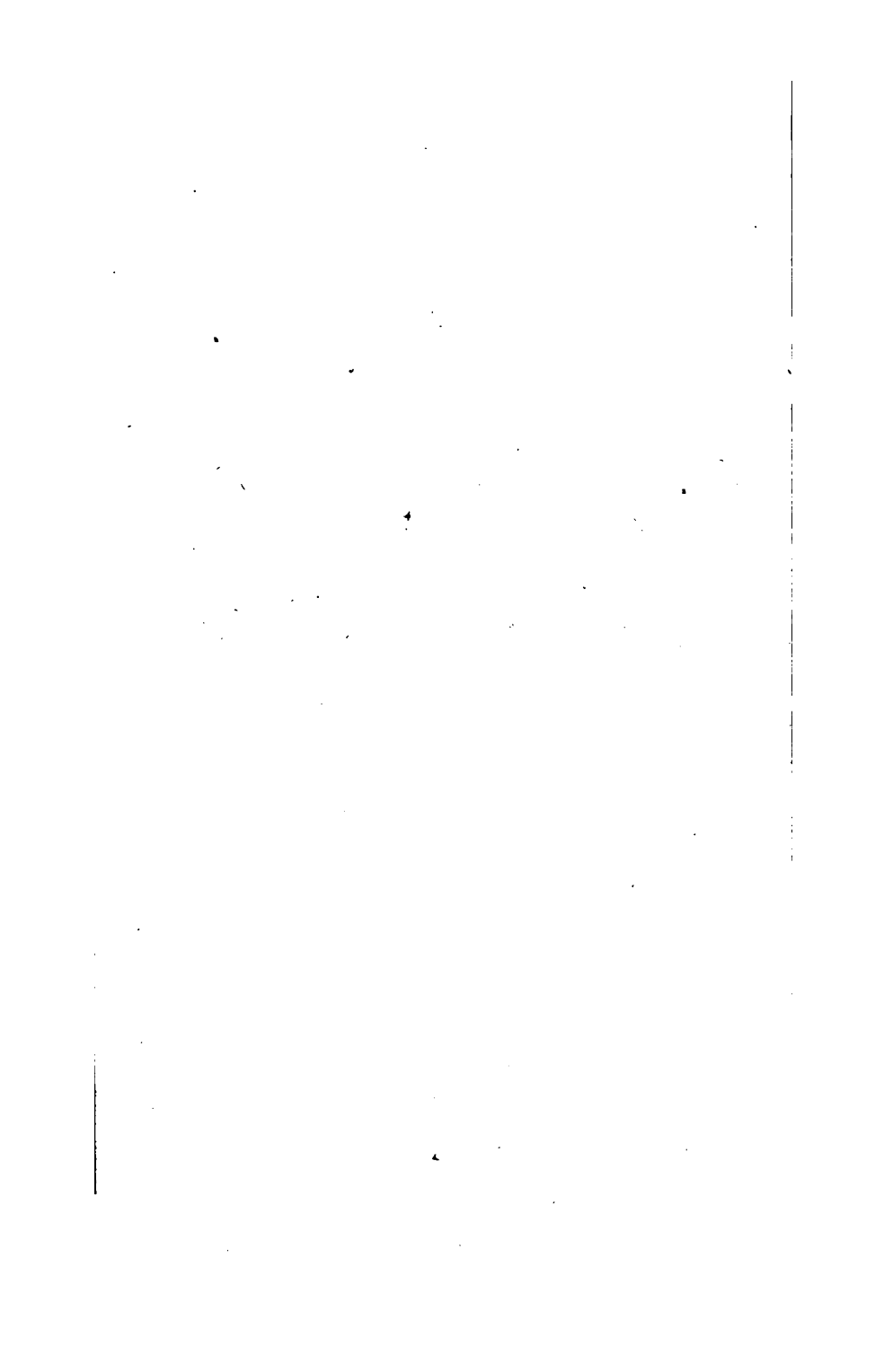






**ARTIS LOGICÆ**

**RUDIMENTA.**



# ARTIS LOGICÆ

## RUDIMENTA.

WITH

### ILLUSTRATIVE OBSERVATIONS

ON EACH SECTION.

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*SECOND EDITION.*

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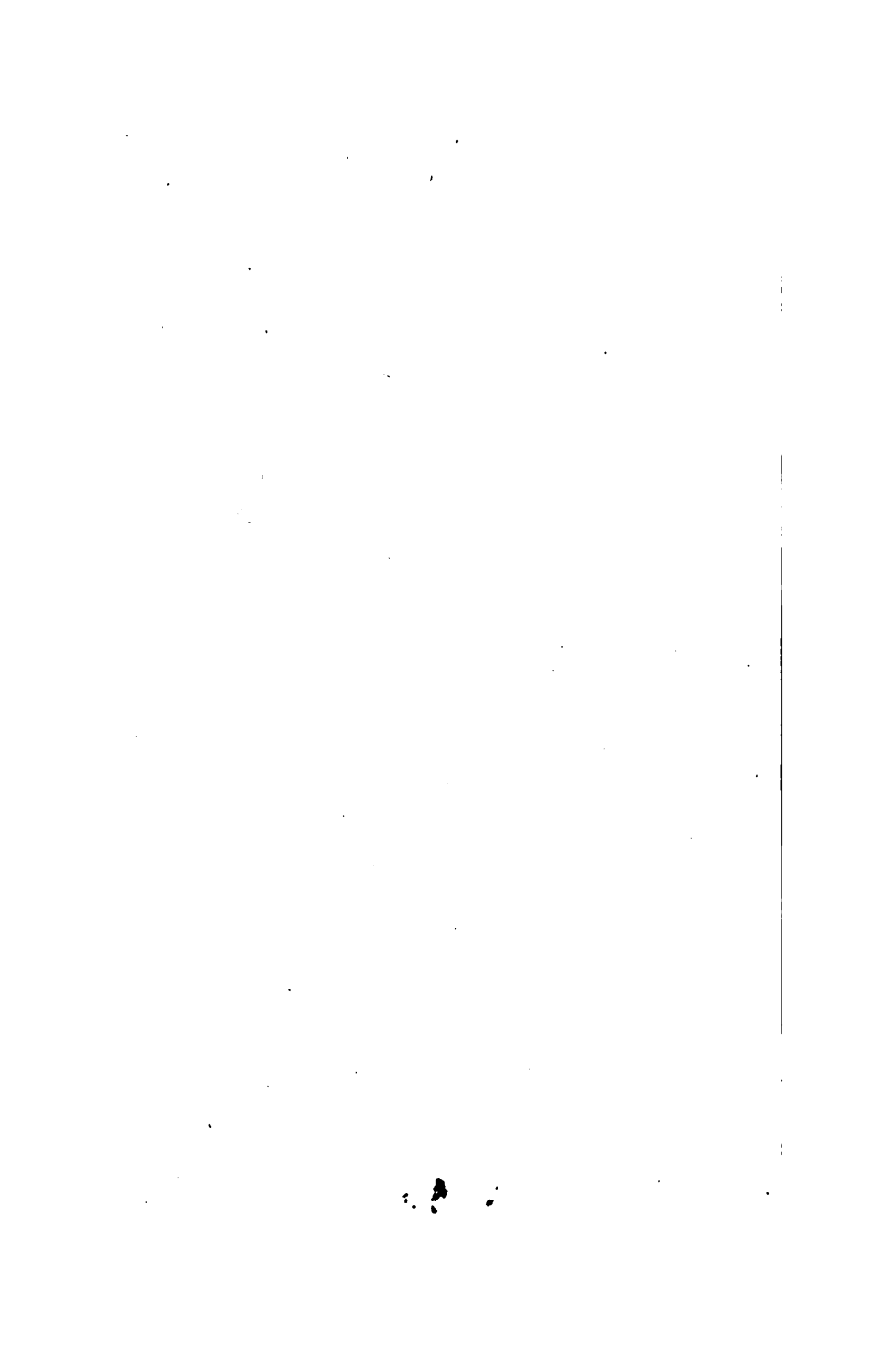
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# ARTIS LOGICÆ

## RUDIMENTA.

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### CAP. I.

#### DE TERMINIS SIMPLICIBUS.

##### §. 1. *De Mentis Operationibus.*

**MENTIS** operationes in universum tres sunt.

1. *Simplex Apprehensio.* 2. *Judicium.* 3. *Discursus.*

1. *Simplex Apprehensio*, est nudus rei conceptus intellectivus, similis quodammodo perceptioni sensitivæ; sicut enim *imago* rei est in oculo, ita *idea* in animo: estque *Incomplexa* vel *Complexa*.

*Simple Apprehension* is the mere intellectual conception of a thing. The *operation* of this primary faculty of the mind is also called *perception*, or *conception*. And the *result* of the operation of this faculty on any particular object is denominated properly, a *notion*, and metaphorically, an *impression*, a *conception* or *perception*, an *idea* or *form*, an *image* or *representation*. These figurative terms are borrowed from sensitive perception; an analogy being supposed to exist between mental apprehension, and the effects of natural objects on the bodily senses; especially on those of feeling and sight. This supposed similitude however seems to

be inconsistent with correct metaphysical principles. It is not easy to attach any definite sense to that mode of speaking which assumes that any kind of image or picture of material objects can be traced on an immaterial substance; or that any representation or image can be made of mere qualities or attributes, as, *virtue, heat, propensity*. The mind *apprehends* the abstract language of the mathematician, when he asserts that  $x + y = a$ ; or of the lawyer, when he puts the case, that *A. B. is indebted to C. D.* But it seems impossible that there can exist in these acts of apprehension any thing really analogous to the effect of sensible objects on the sight or feeling. In what manner the mind is primarily acted on appears to be an incomprehensible mystery.

*Apprehensio simplex Incomplexa, est unius objecti, ut calami; vel etiam plurium, confuse, ut calami, manus, &c. Complexa, plurium, sed cum ordine quodam et respectu; ut calami in manu.*

The term, *Incomplex Simple Apprehension*, taken in its metaphysical and most proper sense, denotes a pure, uncompounded, and consequently indivisible notion or conception; as, *hardness, extension, colour, essence*. *Complex Simple Apprehension*, metaphysically understood, denotes every combined or divisible notion; as that of *Man*, which may be reduced to the simpler notions of *animality*, and *rationality*: *Table*, including the notions of the *material*, the *form*, the *use*, &c. *Gratitude*, which comprehends the notions of a *benefactor*, a *recipient*, *benefits conferred*, the *remembrance* of those benefits, the *love*, or *esteem* excited by them, &c.

But for the purposes of Logic, it is sufficiently accurate to call those apprehensions *incomplex* which

are expressed by one word, whether simple or compounded. Such are the notions denoted by the following examples: *Time, invaluableness, treasure, revenge, kind, wildness, justice, royalty, England, throne, relation or property* (implied in the particle *of*), *superimposition or elevation* (implied in the particle *on*), *individuality* (implied by *the*).

Each of these words represents an *incomplex simple Apprehension*, in the more vague and logical sense of that term. When so combined as to create a grammatical relation or dependence, they become representatives of *Complex Apprehensions*: thus; *That invaluable treasure, time. That wild kind of justice called revenge. The King of England on the throne. The possession of power to suspend the prosecution of our desires.*

So also, the faculty by which we comprehend the meaning of whole sentences, or of series of sentences to any extent, is *Complex simple Apprehension*. Under the same term are likewise included the mental powers and operations of consciousness, imagination, memory, anticipation, association, generalization, arrangement, &c.

2. *Judicium*, est quo mens non solum percipit duo objecta, sed, quasi pro tribunali sedens, expresse apud se pronuntiat, illa inter se convenire aut dissidere.

Est enim *Judicium* aliud *Affirmativum*, quod vocatur etiam *Compositio*; aliud *Negativum*, quod et *Divisio*.

Porro, tam particula *Est*, quæ affirmando convenientiam exprimit, quam *Non-Est*, quæ negando dissidium, appellatur *Copula*; (sicut et *Grammatica Conjunctiones disjunctivas ha-*

bet;) atque hanc determinando differt *Judicium* ab *Apprehensione* complexâ.

E. g. Si quis dixerit *Triangulum æquilaterum esse æquiangulum*, possum *Apprehensione* simplici incomplexâ intelligere quid sibi velint singula orationis hujus vocabula, complexâ vero quid tota sibi velit oratio: Quin et ipsius naturæ lumine intelligo, duo quælibet objecta vel inter se convenire, vel non convenire; et proinde alterâ copularum esse jungenda: Nondum tamen feci *judicium* donec copulam determinaverim, i. e. apud meipsum statuerim hæc duo objecta, *Triangulum æquilaterum*, et *Triangulum æquiangulum*, hæc copulâ *Est*, non autem alterâ *Non-Est*, oportere conjungi.

By the operation of *Judgment* the intellectual faculty compares any two objects, and decides on their mutual agreement or disagreement.

The simple act of understanding the sense intended to be conveyed by any assertion, whether affirmative or negative, is the office of *Apprehension*. The acquiescence or non-acquiescence of the mind in that assertion is the exercise of *Judgment*.

The Substantive Verb alone, in the present tense of the indicative mood, constitutes the *affirmative Copula*. The same verb, qualified by the negative adverb, constitutes the *negative Copula*, which is necessary to the expression of a negative judgment. The affirmative judgment is called *Composition*, because it *places together* and *unites* the two objects compared, as agreeing with each other. The negative judgment is called *Division*, because it, as it were, *divides* or *separates* objects from each other, as ex-

pressing a disagreement between them. Yet the verb of existence combined with the negative particle is rightly called a *Copula*, since it serves to unite in one sentence the terms which express those objects of comparison.

The trains of thought which are expressed in the following sentences, afford examples of Judgment :

*Time is an invaluable treasure.*

*Revenge is a kind of wild justice.*

*That which is past and gone is irrecoverable.*

*It is the glory of a man to pass by an offence.*

—— *Man knows not how to value right*

*The good before him ; but perverts best things*

*To worst abuse, or to their meanest use.*

*A flatterer is not deserving of a wise man's esteem.*

3. *Discursus*, est motus sive progressus mentis ab uno Judicio ad aliud ; quod et Ratiocinium dicitur ; et significatur copulâ illativâ, qualis est *Ergo* aut alia similis. v. g. *Qui est extra fortunæ potestatem est beatus. Sapiens est extra fortunæ potestatem. Ergo, Sapiens est beatus.*

*Reasoning* consists in the comparison of judgments in which the mind has previously acquiesced, and in deducing from them a new and distinct judgment. For example ;

*No element is liable to decomposition ; Water is liable to decomposition ; Therefore water is not an element.*

*Whatever makes a man most effectually superior to his enemies confers genuine glory ; But the disposition to pardon their injuries makes him most effectually superior to them ; Such a disposition therefore confers genuine glory.*

*It is an undeniable truth, that it is the glory of a*

*man to pass by an offence ; for the wisest of men asserts it to be so.*

The mention made in the text of the characteristic particle which denotes an inference has relation, not to the operation of reasoning, but to the language in which it is expressed. It is therefore somewhat misplaced here. The same observation applies in some degree to the mention of the copula employed in expressing judgment. But it is very difficult to speak of the pure mental operations without some reference to the modes of communicating them. It is however useful to habituate ourselves to view them as really distinct.

The English word *Discourse*, as employed in the sense of *reasoning*, is obsolete, and cannot be now so used without ambiguity. This ambiguity is very manifest in a passage of Dryden, in which the word occurs ; and the force of which few readers, from that very circumstance, will discover at first sight. The poet addresses the deist thus :

Vain, wretched creature ! how art thou misled,  
To think thy wit these god-like notions bred !  
These truths are not the product of thy mind,  
But drop from heav'n, and of a nobler kind.  
Hence all thy nat'ral worship takes the source,  
'Tis Revelation, what thou think'st *discourse*.

The expression, *discursive faculty*, is however not uncommon, nor is it liable to the same objection.

Singulis operationibus sui accidunt defectus.  
Apprehensioni, *Indistinctio* ; Judicio, *Falsitas* ;  
Discursui, *Mendosa Collectio*.

1. There are innumerable objects of which our notions or apprehensions must, from the weakness of our nature, be unavoidably *indistinct*. Such, for instance, are our conceptions of the *Divine Being*, and of all his attributes, *Infinity*, *Omnipotence*, *Omniscience*, *Perfection*, &c. The apprehensions we

form of *Heaven*, of *Angels*, of the *Human Soul*, of the *Operations of our own minds*, are necessarily indistinct.

In numberless other instances our ideas are *accidentally indistinct*; that is, not from any *inherent* defect, but from the want of an actual acquaintance with the object, whether from the deficiency of opportunity or of observation. Thus an uninstructed person forms an inaccurate conception of the nature and use of *philosophy*: A native of the torrid zone has an indistinct apprehension of *ice*: The ancients had no correct notion of an *eclipse*. Of those objects with which we are familiar we form ideas proportionately *less indistinct*; but there exist probably very few things, the nature of which we can be said, strictly speaking, to comprehend *distinctly*.

2. Nor is the faculty of *judgment* free from imperfection. It is misled by *sense* in the rustic who conceives that *The earth is stationary*; that *The sun rises from the sea upwards*. It is unduly influenced by *authority and example* in those who conceive that *Earth, air, fire, and water, are simple elements*; or in the illiterate mechanic, who judges that *All which some factious demagogue says must be true*: and that *Whatever Government does must be wrong*. It is often perverted by the *passions*; as when men decide that *The Gospel consists in a repeal of the obligation of the moral law*; that *Honesty is the whole of religion*. The Lycaonians at Lystra were guilty of a false judgment, when they said of Paul and Barnabas, *The Gods are come down to us in the likeness of men*. So also were the Pharisees, when they said of our blessed Lord, *We know that this man is a sinner*.

3. The powers of *Reasoning* are likewise imperfect. If our previous judgments are inaccurate, it is natural that the new judgment deduced from them should be erroneous: for instance, *Honesty is the whole of religion*; therefore *I may indulge myself*

*with impunity in excess.* Again, if a true conclusion be deduced from a false judgment, the process in the mind must necessarily be inaccurate: for falsehood cannot produce truth.

But the defect in the faculty of reasoning is most evident, when from true and undeniable judgments we infer an incorrect judgment. Such are the following examples:

*Bread is dear and work is scarce, therefore I am authorized to riot.*

*I must accept a challenge, or else I shall incur the imputation of cowardice.*

*Revenge is usually esteemed a mark of a noble spirit, and is therefore to be indulged in order to maintain our reputation.*

*The Church is larger than the moon: for it is capable of concealing it from our view.*

*Kings deserve honour; but subjects are not kings; consequently subjects do not deserve honour.*

The Pharisees argued erroneously when they inferred that our blessed Saviour was not of God, because he kept not the sabbath day according to their traditions.

The Melitans drew an erroneous conclusion when they reasoned thus: *This stranger is about to be killed by a venomous serpent; therefore he is a murderer pursued by vengeance.* Nor was their subsequent inference less erroneous, when in consequence of his shaking off the animal without injury, they said *that he was a god.*

Quæ cum Sapientes animadverterent, et opportuna illis remedia excogitassent, præcepta sua in unum compegère; eorumque Scientiam dixère *Logicam, sive Artem Rationis.*

Logic, like Rhetoric, is not a mere artificial acquisition; but is natural to man; yet it is imperfect, as has been already shewn by an induction

from the several faculties of the mind to which it bears relation; and it is therefore improvable by observation and study. Nor does it afford any just objection to the utility of a system of Logic, that many are able to form accurate conceptions, to judge correctly, and to reason well, without having studied any such system; or that many, after a familiar acquaintance with the technicalities of Logic, still continue to be weak reasoners. Without such study the latter may have been still more incompetent: with it, the former would have acquired a still greater command of their reasoning powers.

Est igitur *Logica*, Ars instrumentalis dirigens mentem in cognitione rerum: ejusque partes tres sunt, pro operationibus mentis quas dirigit. 1. *De Simplici Apprehensione*. 2. *De Judicio*. 3. *De Discursu*.

Logic is (like Rhetoric) an *art*, not a *science*. It relates to something which is *to be done*, not to any thing which is *merely to be known*; to *practice*, not to *theory*.

It is not a *final* art; that is, an art the end and object of which consists in the performance itself, and which is therefore practised solely or primarily for its own sake; such as the art of playing on musical instruments, &c. Logic, on the contrary, is studied and exercised only with a view to some further object, distinct from itself; and is therefore an *instrumental* art. Thus the art of *building*, of *warfare*, of *government*, are *instrumental* arts; carried on not for their own sakes, but for the sake of their natural results, or the ends to be acquired by their exercise; as, the existence of the edifice required, the defence of our country, the maintenance of social rights and order.

Every instrumental art must have some appropriate office. The office of Logic is *to direct the mind in the knowledge of things*. It does not guide us into the knowledge of things: for it does not make us to know, or communicate knowledge. The folly of expecting from it more than it professes has, by a natural reaction, become the occasion of the low esteem in which many hold it. It has been treated like some useful medicines, the advocates of which have so overrated their virtues as to induce the cautious to reject them as altogether worthless. Logic may exercise the mind, but it cannot supply the place of natural faculties, or of the external material on which the faculties are to act. It is the mere *tool*, requiring strength and skill for its use. It is a *staff*, which cannot discover the road, nor convey its bearer into it; yet enables him to proceed with greater ease when he is in the right path. Its office is to *assist* and *direct* the mind while engaged in the pursuit or communication of knowledge.

## §. 2. *De Vocibus.*

**QUONIAM** vero, inter docendum et disputandum, neque res aliqua, neque conceptus, cui subjacet, commodè in medium afferri potest; necesse est vicaria utriusque signa substituere, quorum usum idoneum docendo, Logica mentem unà ad bene operandum instruit.

Hujusmodi signa apud homines recepta, sunt *Voces*: Nam *Vox* est signum rei vel conceptus ex instituto vicarium: et in significando, primo quidem *declarat* conceptum, deinde *supponit* pro re. Dico autem *ex instituto*, quia soni inarticu-

lati, vocesque quas natura sponte suggerit, extra artem censentur.

*A Word is an arbitrary vicarious sign of a thing or of an idea.*

It is a *sign*; a mark or token of the existence of some thing or of some conception intended to be expressed or represented by it.

It is a *sign of a thing*; inasmuch as it serves to represent the object which is known by that particular combination of sounds or forms. Thus the word *London* represents the city to which custom has affixed that name. The same is represented by the word, (or, grammatically speaking, the combination of words,) *The chief city of this country*.

A Word is also the *sign of an idea or conception*. The word *London*, or *The chief city of England*, intimates that the notion or conception of the thing denoted by that word exists in the mind of the speaker or writer, which he wishes to communicate to another by exciting a similar notion in *his* mind.

A Word is usually considered to be at once the *sign of a thing and of an idea*. But these may be separated. It may denote a *thing* without a correspondent *idea*; as when we repeat that which we do not understand. Or it may denote an *idea* without a correspondent *thing*. Such, for instance, are abstract terms representing ideal, not positive, objects; as *Possibility*, *Privation*. Such also are those words which express creatures of the imagination only; as *Fairy*, *Griffin*, &c.

Again, a *Word* is a *vicarious sign*. It not only (like a painting suspended before a house of entertainment) gives information of the existence of the thing denoted; but (like a bank note) it supplies the place of that which it represents. It first *declares* the idea or notion in the mind; it then *sets* that idea or notion in the place of the object which excites it; treating the *idea* and the *thing* as if they

were one and the same; and lastly, it is *itself* employed as a *substitute* both for the object, and for the idea which that object excites. Thus in the sentence, *London is the metropolis of England*, that is said concerning the word *London*, which is intended concerning the thing signified by that word.

Lastly, a *Word* is an *arbitrary* sign. It acquires its signification only from mutual compact. There is not any natural fitness in the sounds or forms which constitute any word (except in some few which are formed by imitation) to express either the idea or the object to which that word is appropriated. Hence in different languages different words convey the same meaning; as, *ἔπος*, *verbum*, *mot*, *word*; *τέλος*, *finis*, *fin*, *end*; *Γαζα*, *θησαυρός*, *treasure*. The same words also convey different senses; for instance, the combination of forms constituting the word *pain*, is not less adapted to convey to a Frenchman the notion of *bread*, than to excite in *our* minds the thought of *uneasiness*. The sounds composing the word *lego* form as efficient a representative of *I read* or *I call* in Latin, as *ἀλέγω* is in Greek of *I cease*. For this reason also, even in the same language, different words express very nearly the same ideas; as, *pugna*, *prælium*; *hostis*, *perduellis*; *vote*, *suffrage*: while on the contrary the same word bears different, and sometimes opposite senses; as, *leasing*, i. e. *gleaning*, or *falsehood*; *to let*, i. e. *to permit*, or *to hinder*.

Even words derived from imitation, as, *cuckoo*, *crash*, *βόμβος*, require the authority of custom to constitute them legitimate words.

Each language moreover possesses some words to which there are no correspondent expressions in another. Of this kind are the French word *ennui*; the Latin *colo*; the Greek *λόγος*, *ἐκκλησιαστής*; the Persian *parasang*; the English *parliament*. Such combinations of ideas can be expressed in other

languages only by adopting the foreign word, or by circumlocutions, or by approximation.

Jam quæ simplicem Apprehensionem exprimit, *Vox simplex* est; quæ Judicium, *Complexa*; quæ Discursum, *Decomplexa*. Nam argumentum omne resolvitur in tres *Propositiones*, sive sententias, et propositio omnis complectitur voces, non semper numero, sed sensu semper tres; 1. *Subjectum*, sive de quo aliud dicitur. 2. *Prædicatum*, sive id quod dicitur. 3. *Copulam*, quæ utrisque media intercedit. Nam Subjectum et Prædicatum quoad sensum semper extrema sunt, et vocantur ideo *Termini Propositionis*.

1. Any combination of grammatical words which represents one act of compound or complex Apprehension is logically to be considered as a *simple word*. Thus, *He that is of a proud heart*; *A stirrer up of strife*; *The single consideration of the progress of a finite spirit towards perfection*; *A consideration sufficient to extinguish all envy in inferior natures and all contempt in superior*; are respectively simple words.

2. The act of judgment requires the previous apprehensions of two objects; to which the mind adds a third act of apprehension, while it decides on their agreement or disagreement. Consequently the form of language necessary to express the operation of judgment must consist of three simple words; which together constitute one *complex word*. Such are the following propositions; in which the subject, copula, and predicate, are separated by an obelisk; and the grammatical words which express a simple complex apprehension

(and which thus constitute one logical simple word) are united by hyphens.

*He - that - is - of - a - proud - heart † is † a - stirrer - up - of - strife.*

*The - single - consideration - of - the - progress - of - a - finite - spirit - to - perfection † is † a - consideration - sufficient - to - extinguish - all - envy - in - inferior - natures - and - all - contempt - in - superior.*

*The - man - that - walketh - not - in - the - counsel - of - the - ungodly - nor - standeth - in - the - way - of - sinners - nor - sitteth - in - the - seat - of - the - scornful † is † blessed.*

*The - ways - of - wisdom † are † ways - of - pleasantness.*

*Pleasure - and - pain - together - with - their - causes - good - and - evil † are † the - hinges - on - which - our - passions - turn.*

The Copula is often grammatically combined with a part of the Predicate. Thus, in the proposition, *The way of the wicked † shall be darkness*, the word *shall be* not only denotes the simple notion of the Copula, which expresses agreement, but comprehends also the idea of futurity. The proposition may be resolved thus: *The way of the wicked † is † a way which shall be darkness*; or, *a way tending to darkness*. A similar combination occurs in the following instances:

SUBJECT.

COPULA AND PREDICATE.

*Litera scripta . . . . manet.*

*A sudden question . . takes a man by surprise.*

*A prudent man . . . foreseeth the evil.*

*Darkness . . . . . at his bidding fled.*

As to the sense, the Subject is always the first word in a sentence, and the Predicate the last. They are however often reversed in the actual arrangement: as,

*I that-region lost. - Sweet is the breath of morn.*

*Not absolutely vain is human praise,*

*When human is supported by divine.*

*Strait is the gate, and narrow is the way, that leadeth unto life.*

*It is dishonest and contemptible to use equivocation.*

*It is expedient to treat strangers with reserve.*

*Finitima sunt falsa veris.*

*Minime sibi quisque notus est.*

*Una salus victis nullam sperare salutem.*

*Οὗτοι κρείττοις ἕκαστα γίνονται, οἱ δὲ ἀφίμνοι τοῦ πολλοῦς προσίχων τὸν νοῦν, ἐπὶ ᾧ ἔργον τεύσσονται.*

*Causa et radix fere omnium malorum ea una est, quod dum mentis humanæ vires falso miramur et extollimus, vere ejus auxilia non quæramus.*

The apparent or grammatical subject is not always the true logical subject. Thus in the proposition, *That desire is a state of uneasiness every one who reflects on himself will quickly discover*; the apparent subject is *every one who reflects on himself*, and the predicate (with the copula) is, *will quickly discover that desire is a state of uneasiness*. But the sense of the passage requires us to consider the fact, *that desire is a state of uneasiness*, to be the true subject; of which it is predicated that it is *quickly discoverable by every one who reflects on himself*. In deciding on such propositions, the context and the general tenor of the argument must usually be our guide.

3. The process of reasoning requires the previous operation of two judgments; whence a new agreement or disagreement is inferred. Hence it cannot be *fully* expressed by fewer than three sentences. Thus, in inferring the immortality of the soul from its immateriality, or the spherical form of the earth from the appearance of its shadow, the mind carries on a process to this effect: It previously acquiesces in the judgment, that *Every thing immaterial is immortal*; or, that *The substance which, in whatsoever position it be, casts a circular shadow, is spherical*. It then assumes, in the former case, that *The soul is*

*immaterial*; in the latter, that *The earth is a substance which, in whatever position it be, casts a circular shadow*. Whence it proceeds to the third judgment, namely, that *The soul is immortal*; or, that *The earth is spherical*. This entire process expressed in language is logically called a *decomplex*, or doubly complex word.

Atque hinc adeo vulgo dicitur Pars prima Logicæ versari circa *Terminos simplices*, i. e. voces simplices, Apprehensionem simplicem exprimentes: secunda circa *Propositionem*, sive Vocem complexam, quæ Judicium exprimit: tertia vero circa *Syllogismum*, sive Vocem decomplexam, quâ Argumentatio sive Discursus exprimitur.

### §. 3. *De Nominum Divisionibus.*

**PRIMA** igitur pars Logicæ versatur circa *Terminos Simples*; i. e. ejusmodi voces, quæ solitariae in propositione prædicari vel subjici possunt; et vocantur ideo *Categorematicæ*, ut *homo*, *lapis*. Quædam etiam vocabula sunt tantum *Syncategoremata*, sive compartes subiecti aut prædicati, ut *omnis*, *nullus*; Quædam etiam mixta, ut *semper*, i. e. omni tempore; *nemo*, i. e. nullus homo; *currit*, i. e. est currens; quo etiam modo verbum omne grammaticum resolvi potest.

*Verbum* igitur *Logicum* (nempe *purum*) præ-

ter Copulam nullum est: cætera ex participio et copulâ coalescunt.

*Simple Terms* or *Categorematic Words* are those words which may be used *alone* either as the subject or the predicate, in a proposition.

A simple term therefore must be a substantive in the *nominative case*; either by itself, or constituting with its adjuncts one simple logical word. Thus in the proposition, *Nobilitas sola est atque unica virtus*, the word *virtus*, by itself, constitutes the subject; the substantive *nobilitas*, with its adjuncts, in other terms, the logical word *nobilitas-sola-atque-unica*, constitutes the predicate. These are therefore two simple terms.

In the sentence, *Virtus est vitium fugere*, the word *vitium-fugere*, which is the subject, and the word *virtus*, which is the predicate, are both simple terms. For the subject *vitium-fugere* is truly a noun substantive in the nominative case. Again, in the proposition, *I am happy*, the two simple terms are *I*, which is the representative of a substantive in the nominative case; and *a-happy-man*, which is implied in the elliptical form, *happy*.

All Adjectives and Participles are *Syncategorems*; since they can, in sense, form only a part of a subject or predicate. For they necessarily require a substantive, either expressed or understood. In the sentence, *Music is delightful*, it is not true that *delightful* constitutes the predicate. The actual term is incomplete; and should be expressed thus, *a delightful thing*. *Man is frail*; i. e. *a frail being, or creature*. *The king was astonished*; i. e. *a person astonished*.

Substantives in the oblique cases are also *Syncategorems*, as, *Pecus est Melibæi*; i. e. *Pecus est pecus-Melibæi*. *I yield to my betters*; i. e. *I am a-person-yielding-to-my-betters*.

*Mixed words* may be formed by the combination

of two syncategorems, as in the first instance given in the text: or of a categorem and a syncategorem, as in the second instance: or of the copula and a syncategorem, as in the third example.

The mixed words of the second class (formed by the combination of a categorem with a syncategorem) are themselves also categorems or simple terms. Thus *Nemo* is a mixed word, because it is formed of *nullus* and *homo*: but it is a simple term, because it may be the subject of a proposition. Thus again the words, *consideration*, *progress*, *spirit*, *perfection*, are in themselves categorems; whereas, the words *this*, *single*, *finite*, &c. cannot be any other than syncategorems. But the mixed word, *This single consideration of the progress of a finite spirit to perfection*, is also a categorem; and the less complex terms which form a part of it are, when taken in connexion, reduced to the rank of syncategorems.

The third class of *mixed words* comprehends all grammatical verbs, except the substantive verb in the indicative mode and present tense, which simply denotes unqualified existence, divested of all notion of time or mode. Thus, *I stand*, logically resolved, denotes *I am standing*; and, by the completion of the predicate, *I am a person standing*.

*Nomen Logicum*, est *Terminus simplex sine tempore significativus*. Nam ex antedictis, *Terminus simplex* idem valet atque vox articulata et recta, et ex instituto significans: siquidem exclusæ sunt voces inarticulatæ, quasque natura sponte suggerit; voces autem obliquæ sunt Syncategoremata.

A *Logical Noun* is equivalent to a *Simple Term*, or *Categorem*. It is *significative*: in opposition to adverbs, prepositions, conjunctions, &c. which have

no actual signification, but merely unite, or qualify, or denote the relation between the words with which they are joined. It is *without the expression of time*: as distinguished from verbs, which, by the changes of terminations or of auxiliaries, denote time past, present, and future.

The definition above given of a *Logical Noun* is not quite accurate. It appears to imply that the *Noun* is a kind of *simple term*, distinguished from other kinds of simple terms by the adjoined qualities, *significant*, and *inexpressive of time*. Whereas in fact these qualities are essential to a *simple term*; and the two, instead of being related to each other as a part to the whole, are exactly equivalent in signification. A *Logical Noun* may be defined *A significant Word, inexpressive of time or relation*. The additional limitation, *inexpressive of relation*, excludes both adjectives and the oblique cases of substantives.

It may not be obvious to every reader, that the word *recta* in the text, applied to *vox*, is used in the grammatical sense, in contradistinction to the subsequent expression *voces obliquæ*. The ancient grammarians represented the natural form of a noun as being *erect* or *upright*; and the various modifications which the noun undergoes in government, as *fallings-off*, (*casus*;) or *declensions* from that erect form. Hence *vox recta*, or (by a strange confusion of metaphor,) *casus rectus*, was adopted to denote the primitive form or *nominative case*; while the epithet *obliquus* was attached to the governed cases; i. e. to all the other cases except the vocative.

Nouns in the vocative case cannot fall under logical rules; for they form no part of a sentence. Mere sounds of imitation, and natural exclamations are for the same reason excluded.

Multæ sunt Nominis Divisiones; quarum tres sufficiunt hujus loci instituto; sed ob multiplicem earum usum, quinque alias adjungam.

1. *Nomen singulare*, est quod rem unam et solam significat, ut *Socrates*: *Commune*, quod plura, et eorum singula significare potest, ut *homo*.

All *Proper Names* are *singular Nouns*, as *London*, *England*, *the Thames*, *Adam*, *George*, *Aristotle*, *Alexander*.

But a Noun in itself common, when a sign or syncategorem is so combined with it as to limit its signification exclusively to one object, is also to be considered as a *singular Noun*: as, *The King*. *My eldest brother*. *The noble Lord that spoke last*. *The first man who ever ventured on the ocean*.

A *Common Noun* in Logic is generally equivalent to a *common* or *appellative* noun in Grammar. The term however is applied not only to single grammatical words, but to such combinations of words also as express a general idea.

The name *Man* serves to represent the whole class of mankind collectively; but each individual of the human race is with equal correctness denominated *a man*. The word *Rectilineal Figure* signifies a class consisting of many individual things; and the same word is employed as descriptive of each one of those things individually.

*Singular Nouns* are sometimes employed (not logically, but figuratively) as *common Nouns*. As, *The CICERO of his day*.

*Some village HAMPDEN, that with dauntless breast  
The little tyrant of his fields withstood;*

*Some mute inglorious MILTON here may rest;*

*Some CROMWELL, guiltless of his country's blood.*

2. *Finitum*, est cui abest particula *non*: *In-finitum*, cui præfigitur, ut *non homo*, i. e. omnia præter hominem: unde particula *non*, dicitur *infinitan*s.

The proper English terms which express this division of Nouns are *Definite*, and *Indefinite*.

By prefixing the negative particle the expression is rendered (not *infinite*, but) indefinite. If it be predicated of any thing that it is *not a book*, that one thing, *book*, alone is excluded, while it continues wholly *undefined* what other thing the subject thus spoken of may be.

The definite and indefinite Nouns together constitute a perfect division or dichotomy. Thus, all animals are either *rational*, or *not-rational*; all created things are either *sentient* or *non-sentient*; *corporeal* or *incorporeal*; all men are either *virtuous* or *not-virtuous*.

3. *Positivum*, est quod significat rem quasi præsentem: *Privativum*, quod dicit absentiam rei a subjecto capaci: *Negativum*, quod ab incapaci. Sic *homo* est vox *positiva*; *videns* dicitur de homine *positive*; *cæcus* de homine *privative*; *cæcus*, seu potius *non videns*, de lapide *negative*.

In the sentence, *The satellites of Jupiter are visible through a telescope*, the word *visible*, as well as the other terms employed, are used *positively*. In the sentence, *The moon is occasionally invisible*, the word *invisible* is used *privatively*, and the predicate, *an invisible thing*, is a *privative noun*; because it expresses the absence of *visibility* from the moon which is capable of *being seen*. But when it is said, *The human soul is invisible*, the word *invisible* is *negative*, inasmuch as it is predicated of a subject incapable of *being seen*.

Examples of *Positive*, *Privative*, and *Negative* Words.

Positive,	A <i>living</i> man.
Privative,	A <i>dead</i> man.
Negative,	A <i>lifeless</i> corpse.
Positive,	<i>Pleasant</i> society.
Privative,	<i>Unpleasant</i> sounds.
Negative,	<i>Unpleasant</i> sarcasms.
Positive,	A man of <i>feeling</i> .
Privative,	An <i>unfeeling</i> wretch.
Negative,	The <i>senseless</i> rock.
Positive,	A <i>mortal</i> body.
Privative,	<i>Immortal</i> fame.
Negative,	A soul <i>immortal</i> .
Positive,	A <i>fruitful</i> vine.
Privative,	An <i>unfruitful</i> vine.
	A <i>fruitless</i> search.
Negative,	The <i>unfruitful</i> elm.
	<i>Fruitless</i> anxiety.
Positive,	A man of great <i>merit</i> .
Privative,	The <i>demerit</i> of our works.
Negative,	'The <i>demerit</i> of sin.
Privative,	An <i>unconstitutional</i> declaration.
Negative,	An <i>unconstitutional</i> infringement on the prerogative of the crown.

*A rational man may be guilty of irrational conduct.  
The irrationality of brutes is inherent in their nature.*

*Telus imbellis sine ictu.*

*As uncertain as the wind.*

*The debt immense of endless gratitude.*

The same word may often, under different points of view, be considered either as positive, or as privative or negative. Thus *mortal* is positive, in reference to *immortal*, its privative or negative. But *immortal* may be understood as positive, in contrast with *perishable*. Again, *death* is the privation or negation of life: but it may be accounted positive as opposed to *deathless*. Words may often be variously classed, as we consider their sense or their formation, as *wicked, unholy; unhappy, wretched; impure, filthy*.

4. *Univocum*, est cujus una significatio æque convenit multis, ut *homo*: *Æquivocum*, cujus diversæ, ut *Gallus*: *Analogum*, cujus una inæqualiter, ut *pes*.

Two essential characteristics are to be noticed in each of these definitions; namely, *the number of the significations*, and *the application of those significations to the things signified*.

An *Univocal* word has *one* signification only; in and in that one signification it is *equally* applied to many things.

An *Equivocal* word has *more than one* signification: and in each of its significations it *equally* applies to many things.

*Analogous* words have only *one* signification; but that one signification they are *unequally* applied to many things.

An *Equivocal* word is in each of its different significations a distinct common term. The coincidence in-sound, or sense, or both, is merely accidental; and is a great imperfection in language. The following are instances of Equivocal Nouns.

*Club*; a stick; a society.

*Mail*; a post-bag; armour.

*Tract*, (tractatus); a small book.

—— (tractus); an extent of country.

*Ounce*; a legal weight; a species of animal.

*Pound*; a legal weight; an inclosure for beasts.

*Palm*; a species of tree; the interior of the hand.

*Page*; side of a leaf in a book; an attendant.

*Mast*; fruit of the beech; erect timber in a ship.

*Malus*; (mas.) the mast of a ship.

—— (fem.) an apple tree.

*Ear*; the organ of hearing; a spike of corn.

*Bill*; a fowl's beak; a written account.

*Meal*; a repast; flour.

*Nail*; horn on human fingers; spike of metal.

*Post*; a hasty messenger; station; erect piece of timber.

*Bull*; the animal; the pope's official letter; a blunder.

*Jus*; law; broth.

*Bis*; life; a bow.

*Vestis recincta*; i. e. discincta, or succincta. (Æn. iv. 518.)

• *Proper or Singular Nouns* may be considered as partaking in some measure of this *equivocal* quality. The name *Thomas*, for instance, is applied to those who are so called, not as to individuals of the same class or bearing any common character intended by that name, but in a manner wholly arbitrary and independent.

In *Analogous Nouns* a few only of the leading ideas are retained; while the words themselves are appropriated in a modified and subordinate sense to objects which bear no more than an analogy or similarity to their original application. For example:

*Sacramentum*; a military oath; a Christian sacrament.

*Judgment*; legal decision; a faculty and an operation of the mind.

*Intention*; the state of being strained; purpose; close attention; application of a word.

*Sting*; of an animal; of conscience; of an epigram.

*A religious person*; a man of piety; a person set apart by religious ceremonies, or for religious purposes.

*College*; the corporate society; the building which contains the society.

*Τιμή*; honour; punishment.

*Æquor*; a plane; the earth; the sea.

*Ἀκαλασία*; ἡ περὶ τὰς ἡδονὰς ὑπερβολή.

— αἱ παιδικαὶ ἀμαρτίαι.

*A bitter draught*; foe; misfortune; sarcasm; frost.

*A sour taste*; a *sour* look.

*Κλῆς*; a key; a collar-bone (from the shape.)

*Κόσμος*; order; beauty; the world.

*Fall*; the act of dropping; moral degradation; the autumn; diminution in price; musical cadence.

*Justice*; social right; punishment; the administrator of social right or legal punishment.

*Heat*; caloric; the sensation produced by caloric.

*A vein* of the body; of metal; of poetic feeling.

Cicero uses the following expressions within the space of fifty lines in the first book of the *Offices*;

*Institutio quæ a ratione suscipitur*: (*reason*.)

*Ratio probabilis*: (*reason or account*.)

*In rationem utilitatis cadit*: (*head or division*.)

*Ratio triplex*: (*plan or classification*.)

*Pari ratione*: (*manner*.)

In the same work he has the expressions,

*Omnis ratio debet vacare temeritate*: (*course or system of conduct*.)

*Quibus rationibus : (by what means.)*

*Ratio negligendæ mortis : (the principle.)*

So again in the course of one chapter we find these various uses of the word *contentio* :

*Altera contentionis, altera sermonis : (of public speaking.)*

*Sine contentione vox : (without straining or vehement effort.)*

*Contentiones aliorum : (public speeches.)*

There are indeed very few words which are not *analogous* ; probably none, except those few which have never come into general use, but have been wholly confined to some philosophical or technical application. Our *notions* are infinitely more numerous than our *words* ; each of these must therefore represent many of the former. To invent a new word for every new apprehension would be impracticable ; or, if practicable, would defeat its own purpose. Hence we must use words approximating in signification to the new ideas which we desire to express. In judging of this approximation, not only the illiterate, but philosophers have often erred. Yet the words which custom has established, though philosophically erroneous in the analogical application, must be retained ; while they render a particular effort of the mind necessary, to guard itself against adopting the false principles on which the use of them was originally founded. The metaphysical terms *perception, form, idea, &c.* afford instances of the error here pointed out.

The same words are often both equivocal and analogous : for instance,

*Post* ; a swift or periodical messenger ; an expeditious mode of travelling.

*Post* ; a piece of timber erected ; a stupid fellow.

*Bull* ; the animal ; a violent enemy ; sign of the zodiac.

*Foot* ; the part on which we stand ; that which supports any thing ; the lower part.

*Foot*; a measure of length; a certain number of syllables in a verse.

Probably all these significations of the word *foot* are derived from analogy. But when the analogy is not obvious, the several senses are often considered independent of each other, and the word is classed as equivocal. Thus it may be doubted whether the different significations of *niepus* and *mundus* were attached to those words by a merely accidental coincidence, or whether they originated in any supposed analogy.

5. *Concretum*, est quod rem quasi suâ naturâ liberam exprimit, sed jam implicitam subjecto, ut *Justus*: *Abstractum*, quod rem quasi suâ naturâ nexam, sed jam subjecto exemptam, ut *Justitia*.

The notions expressed by *Abstract Nouns* are acquired by a process of this nature. The primary sensations of our mind are excited (if not universally, at least so far as the present distinction is concerned) by individual external objects discerned by the bodily senses, or by individual acts of internal reflection: such as, *a brother, a philosopher, a green field, an accurate judgment*. We discover that these objects excite not simple but complicated notions; that they consist of some subject combined with certain qualities, or modes of existence. These, by a natural operation of the mind, we resolve as distinct parts; separating from each other the notion of the subject, (as *man, field, judgment*,) and that of the adjoined quality, (as *fraternity, philosophy, greenness, accuracy*.) Thus we consider the quality as if *naturally adhering* to the subject in which we first discovered it, and now separated or *abstracted* from it in imagination only. The word

which represents the notion of a quality thus acquired is called an *Abstract Noun*.

This mental separation of the quality from the subject to which it actually adheres may be effected if we have never had more than one object containing that quality presented to our apprehension. But the operation is both facilitated, and rendered more correct, when we have the opportunity of comparing many different things in which the same quality is discoverable. Thus if we derive our notion of *heat* only from *the sun*, we might be led to consider *radiance* and *celestiality* as essentials to that quality, and to admit those ideas into the abstract word *heat*. But when we find the same quality existing in *culinary fire*, without the latter adjunct; and produced by *friction* without the former; we learn to separate it from those notions, and to employ the abstract term simply to denote that quality by which a certain natural sensation is produced.

The word expressing the object of sense or of mental apprehension from which this process of abstraction originates (as, *brother*, *philosopher*, *green-field*, *accurate-judgment*,) is sometimes called *connotative*; intimating that we arrive at once at the knowledge of the subject, and of the adherent quality.

The term *Concrete Noun*, though usually employed simply as the opposite to *abstract*, refers to a supposed process of the mind exactly the reverse of that just described. If we can conceive our mind to be unconnected with the body, and endued with an instantaneous and intuitive knowledge, we may suppose it to commence its operations with the notion of the simple quality itself, not as abstracted from any subjects, but as if it naturally and primarily existed in a distinct, absolute, and independent state. It may then be considered as proceeding to apply those qualities to particular subjects; as, to

*man, field, judgment, fire.* The terms expressive of those combinations of ideas (as, *brother, philosopher, green, accurate, hot*) are called *concrete words*.

As our abstract notions are the mere production of the mind, without any correspondent *thing* in nature, the latter must be considered as only an imaginary, the former as the actual process.

*Abstract* notions are usually expressed by substantives, as *holiness, virtue, philosophy, similarity, fraternity, royalty, adula, dialoſim*. *Concrete* notions are usually expressed by adjectives, or by attributive substantives; as, *holy, virtuous, philosopher, similar, brother, king, adunus, dialopus*.

6. *Absolutum*, est quod significat rem per se sumptam; *Relativa*, quorum conceptus se mutuo ingrediuntur, ut *Pater et Filius*.

An *Absolute Noun*, as opposed to a *relative noun*, (for the word is employed by logicians in different senses,) denotes a term the sense of which is complete in itself. But a *relative noun* expresses an idea which cannot be apprehended without having at the same time a notion of its correlative. Thus *father* implies the notion of *son*; and *son* of *father*. Such are also *cause* and *effect*; *whole, half, double, treble*; *great, small*; *swift, slow*; *high, low*; *king, subject*. Correlatives have often the same name; as *friend, enemy, companion, opposite, equal*.

7. *Convenientia*, sunt quæ possunt de eodem simul dici, ut *doctus et pius*: *Repugnantia*, sive *Opposita*, quæ non possunt, ut *album et nigrum*.

Things may be said of the same at *different* times, which notwithstanding are *opposite*, or *inconsistent*: for example, The wall which to-day is *white*, may to-morrow be *black*.

*Relative* terms are *opposite*, when the subject is the same. To be *father* and *son* of the same individual is impossible. That which is *half* of one quantity may be the *whole* of another: but *half* and *whole* are opposite, or inconsistent, as applied in relation to the same quantity.

*Contrary* words are *opposite*, or *inconsistent*, as *truth*, *falsehood*; *happiness*, *misery*.

Such also are a *positive* and a *privative*; as *harmonious*, *unharmonious*.

But the strongest and most complete *opposition* of simple terms subsists between a *positive* and a *negative*; or a *definite* and *indefinite* term: as, a *feeling* man; an *unfeeling* rock; he is a *hero*; he is *not a hero*.

8. Nomen *Primæ intentionis*, est Vox in communi usu posita. *Secundæ*, Vox artis, quam ex communi sermone sumptam Philosophia recudit denuo et moderatur.

A distinction must be made between the logical and the etymological signification of the terms *primary* and *secondary intention*. In Etymology, the primary sense is that which was prior in point of time, or which most nearly approaches the meaning of the root whence a word is derived: and every variation from that sense is a secondary sense.

In Logic, the vague colloquial signification is called *primary*: the strict philosophical appropriation of the word is called the *secondary* intention. Hence, so far as we converse logically and correctly, every word we use will be of *secondary* intention; that is, applied in a strict and definite sense.

The following instances will serve to illustrate the distinction between Nouns of primary and secondary intention:

*The attractions of good company.*

*The magnet has the power of attraction:*

*Attraction is the tendency of bodies to each other, without any apparent impelling cause.*

*Attraction in Chemistry is the tendency of substances, especially liquids, so to intermingle with each other as to become inseparable.*

*Attraction in Grammar is a figure by which a word is not constructed according to the usual rules of government, in consequence of the influence of some preceding word with which it agrees.*

*The Chancellor spoke with much animation.*

*The means of restoring suspended animation.*

*A lad of dull comprehension.*

*Comprehension, in metaphysics, is, rem aliquam totam et totaliter cognoscere.*

*Διαλεκτική; the art of conversation; logic.*

*Ὁρίζων; any thing which limits; the horizon.*

*Ὁρὶς; a limit; a geographical boundary; the definition of a word.*

*Ἐπίσκοπος; an overseer; a bishop.*

*Ἀπόστολος; a messenger; an apostle.*

Aristotle takes the word *πραότης*, lenity, from its common and *primary* sense, to signify *the due medium between the excess and defect of anger*; for which the Greek language did not supply an accurate term.

Delight, in its *primary* sense, denotes *a superior degree of pleasure*. But Burke employs the word to express *the sensation which accompanies the removal of pain or danger*. This then is a limited, new-modelled, philosophical, *secondary intention*.

In like manner every author has a right to appropriate any word to a new *secondary intention*; by strictly defining the whole number of ideas which he intends to represent by that word; and by afterwards adhering closely to the same use of it. Such a process is however never expedient, unless in a case of necessity. Locke has done this in regard

to the word *judgment*, which he defines *The putting ideas together, or separating them from one another in the mind, when their certain agreement or disagreement is not perceived, but presumed to be so.* Professor Stewart has affixed a new secondary sense to the word *conception*; by limiting it to *That power of the mind which enables it to form a notion of an absent object of perception; or of a sensation which it has formerly felt.*

Xenophon represents that an officer at Cyrus's table complained of some of his brother-officers, because they had either invented or coloured the anecdotes they had been relating, for the purpose of exciting a laugh; and charged them with being *ἀλαζόνες*. Cyrus defends them by asserting that he misapplied that word by using it in too vague and extensive a sense. In the mouth of this officer it was therefore a word of *primary intention*. Cyrus proceeds to assign its secondary intention thus: 'Ὁ μὲν γὰρ ἀλαζὼν ἔμμελες δοκί' ὄνομα κείσθαι ἐπὶ τοῖς προσκοινομένοις εἶναι καὶ πλουσιωτέροις ἢ αἰσὶ, καὶ ἀνδρωτέροις, καὶ ποιήτειν ἃ μὴ ἱκανοὶ εἰσιν ὑπισχυρομένοις· καὶ ταῦτα, φανεροῖς γιγνομένοις, ὅτι τοῦ λαβοῦν τι ἔνθα καὶ κερδαῖται ποιοῦσιν. Yet the sense in which the officer used the word agreed with that which Aristotle assigns as its *secondary* or *philosophical* signification: Δοκί' ὁ μὲν ἀλαζὼν προσποιητικὸς τῶν ἐνδέξων εἶναι, καὶ μὴ ὑπαρχόντων, καὶ μυζῶναι ἢ ὑπάρχει.

#### §. 4. *De Prædicabilibus formandis.*

*VOX Singularis*, dicitur alio nomine *Individuum*, ejusque significatum *Unum numero*: neque enim singulare est quicquid Unum dici potest; sed multa, quæ sunt invicem similia, eatenus Unum censentur. Vocantur enim uno eodemque nomine; quod ipsa. Vocis definitio

non patitur, nisi in illis reipsâ sit, vel saltem concipi possit, una aliqua eademque Natura, quæ huic nomini respondeat.

Talem reperit intellectus, dum plura contemplando *abstrahit* ab eorum differentiis; i. e. spectat in rebus ea tantum quæ conveniunt, neglectis omnibus quibus dissident; adeoque fundamentum omne discriminis, præter numerum, eximit. Quare naturam sic abstractam, cum sit omni singulorum differentię superstes, concipi par est, non ut in singulis diversam, sed ut in omnibus eandem; adeoque *Universale* quiddam sive *Ens unum in multis*: ejusque signum idoneum erit, Nomen *commune*, *univocum*, *secundæ intentionis*, uno verbo, *Prædicabile*, sive Vox apta prædicari, i. e. univoce dici de multis.

A *Singular word* is called an *Individual Noun*; borrowing that distinguishing epithet from the nature of the notion which it represents; namely, an individual notion, or the apprehension of an individual object. Such a notion cannot be *divided*, either by classification, or by enumeration, for its object is only *numerically one*.

Every thing which actually exists is *singular*, and is therefore capable of being expressed by a singular sign or word.

So long as our knowledge is very contracted, this might be done; but as knowledge is increased, it would be burdensome and useless to appropriate a distinct name to each individual object.

We are satisfied, therefore, with affixing singular

names to those things which occur most commonly as subjects of our mutual communications; as men, countries, cities, rivers, mountains, &c. So a grazier has a particular name for each cow or sheep he possesses, and an astronomer affixes a distinct denomination to every star. Thus also a singular name is invented for each house in a large city, by joining to the name of the street or place in which it is situated, its particular number.

Nouns are *common* or general, when employed as signs of general or abstract notions. And our notions become generalized or abstracted, when we compare several individual objects with each other, and, discovering in them a variety of qualities in which they agree together, as well as several in which they differ, lay aside the consideration of the latter, and adopt and combine all and only those ideas, which are excited by the qualities in which they appear to coincide with each other.

The abstract idea thus excited by a variety of individual objects divested of their distinguishing attributes is expressed by a *sign* or *word* which is called *common*. And such a word, notwithstanding the many individuals to which it applies, is considered as a representative of *one* notion, or *one* object; otherwise it would cease to be an *univocal* term. For the notion itself and the supposed subject of it are no longer thought of as existing in a variety of things numerically different; but as being, to whatever individuals it is applied, still one and the same. That the *thing* supposed by that notion, the *αἰὶν ἕκαστος*, the *universal* nature, really exists, is not to be conceived. No such thing as *abstract-man*, (*αἰὶν ἄνθρωπος*,) *abstract-animal*, *abstract-colour*, *abstract-harmony*, independent of any particular modification and combination, can exist; we only imagine or conceive them to exist for the convenience of generalization and classification.

The process of the mind in abstraction may be

thus illustrated. An infant first attains the individual notions of its *father*, its *mother*, its *brother*, its *nurse*, &c. In these he perceives a common nature. In process of time he sees other objects, in many respects similar to these. He lays aside the ideas of relationship, sex, dress, height, rank, &c. which distinguish the individuals from each other; and having thus framed to himself one idea, which is equally applicable to each, soon learns to denote that idea by the name *man*.

Again; we observe *horses*, *cows*, *lions*, *dogs*, *apes*, &c. (each of which are themselves also general or common words expressing ideas attained by abstraction from the individuals of each kind respectively;) and we discover in them several qualities common to them all. Renewing therefore the original process, we divest these classes also of their respective differences, and distinguish the notion comprehending all the qualities in which they are similar to each other, by the name *beast*. In the same manner have been acquired the notions denoted by the words, *bird*, *fish*, *insect*, &c. If again we compare *bird*, *fish*, *beast*, *insect*; by a similar operation of the mind, we arrive at the more abstract notion expressed by *brute*. But in all *brutes* we may discover certain qualities which likewise belong to our idea of *man*. Laying aside therefore the notions of *reason*, *speech*, and other differences, we retain only the ideas belonging to the common nature, viz. *body endued with life*, *sensation*, and *spontaneous motion*, which we call by the common name, *animal*. After having by continued abstraction obtained the idea of *animal*, and the idea of *plant*; laying aside the notions of *sensation*, *motion*, &c. and of *height*, *colour*, &c. and only retaining the notions of *body*, *life*, *nourishment*, *growth*, &c. which animals have in common with plants, we obtain the abstract idea to which we affix the common name, *living-being*. By a similar process we

gain the idea of *body*, and lastly as the highest step, *substance*.

A few other instances may be added in illustration of this operation of the mind. By abstracting from the individuals, *Socrates, Plato, Xenophon, Aristotle, &c.* the various circumstances in which they differ from each other; and viewing in combination all or the chief qualities or attributes which are common to them, we derive the general idea denoted by the common noun *Philosopher*. From *Homer, Pindar, Sophocles, Euripides, &c.* the idea of *Poet*. From *Parrhasius, Zeuxis, &c.* that of *Painter*. From *Herodotus, Thucydides, &c.* the idea of *Historians*.

From the particular impression on the eye, occasioned by the *green grass, a green cloth, the green in the rainbow, &c.* the mind derives the abstract idea of *Green*. From the comparison of *green* with *blue, red, violet, indigo, &c.* it derives the still more abstract notion of *Colour*. From *colour, light, taste, sound, &c.* *Passive Quality*. From *passive, habitual, and natural quality, Quality*.

From individual *triangles*, whether *right-angled, obtuse-angled, isosceles, equilateral, small, large, &c.* we acquire the abstract notion expressed by *Triangle*. From *triangle, square, rhomb, polygon, circle, &c.* *Figure*. From *figure and form, Sensible Quality*. From *sensible, passive, natural, and habitual quality, Quality*.

The imperfect exercise of this faculty of abstraction, as observable in children and savages, will serve more fully to illustrate its nature. A striking instance of it was afforded by two natives of New Zealand, who lately visited England. Having in their own country no quadrupeds except dogs, pigs, and rats, (of which the first only are indigenous,) and not having acquired any common name to comprehend those three classes of animals; they at first applied their name for dog (*caraddee*) to every

quadruped which they saw in England, as supposing them to be no more than particular variations of the same species. Upon further acquaintance, however, with the several species, they adopted *caraddee* in a sense equivalent to *quadruped*, expressing the several species by adding to that word the English name of the animal. Thus they carried back with them to their own country the names, *caraddee-horse*, *caraddee-cow*, *caraddee-sheep*, as well as *caraddee-dog*: employing their old word to denote an idea more abstract, (that is, comprehending fewer simple ideas, and extending to a greater number of individuals,) than that which they had originally attached to it.

A similar process is observable in other languages. Thus the Greeks and the Romans, as they emerged from the state of barbarity, transferred the words *ἀρετή* and *virtus*, from their original application, in which they denoted the only moral excellence they acknowledged, viz. *manliness*, or *courage*, to a more abstract sense, including *every moral excellence*: that is, to speak technically, the word at first indicative of the *species* became appropriated to the *genus*. So *δικαιοσύνη*, originally applied to *distributive justice*, subsequently acquired a more abstract application to *universal virtue*; *goodness*, which probably was first employed to denote *benevolence*, has gradually acquired its present more extended sense.

There are many words in the use of which we may trace an opposite process, the more abstract and extensive term having subsequently acquired a less abstract signification, by the addition of some new ideas to those which it originally comprehended. We have examples of this in the words, *passion*, when applied to *anger*; *charity*, applied to *alms-giving*; *lust*, as applied to *impure desire*; *affection*, as applied to *love*.

The process of the mind previously described for the purpose of illustrating the origin and nature of

*abstract nouns*, is of the same nature as that which is here more fully developed. Every abstract notion might, if it were thought necessary, be distinguished by a specific abstract noun. Thus we might use the terms *animality* and *man-ness*, to denote the abstract notion, which we acquire from the concretes or connotatives, *animal* and *man*. The general adoption, however, of such words would be cumbersome and needless.

The word which represents an abstract or generalized notion has been shewn to be *common* and *univocal*. Since the ideas attached to it become, by this process, limited in a philosophical and correct manner, it is also a word of *secondary intention*. And because it is capable of being predicated or asserted of all the individuals from which the idea of the universal nature has been derived, it acquires also the denomination, *Predicable*.

#### §. 5. *De Speciebus Prædicabilium.*

**PRÆDICABILIMUM** capita constitui et definiiri possunt ad hunc modum. Quicquid in multis reperiri potest, vel est tota eorum essentia, vel ejus pars, vel cum essentia conjunctum. Quare Universalia vel (quod eodem redit) Prædicabilia sunt quinque, et non plura; videlicet, *Genus*, *Species*, *Differentia*, *Proprium*, *Accidens*.

Nam 1. *Genus* est quod prædicatur de pluribus ut eorum essentia *pars materialis* sive communis; ut *animal*. 2. *Differentia*, quæ ut essentia *pars formalis* sive discretiva; ut *ra-*

*tionale*. 3. *Species*, quæ ut tota essentia; ut *homo*. 4. *Proprium*, quod ut essentia junctum necessario; ut *risibile*. 5. *Accidens*, quod ut essentia junctum contingenter; ut *album*, *nigrum*, *sedere*.

The process of abstraction, and the use of common nouns, are subordinate to that arrangement and classification, without which our absolute knowledge could be applied to little practical advantage. But this classification may be carried still further; and the mind discovers amidst the mass of abstract notions which it acquires, certain distinguishing qualities, which may form the ground of a convenient and complete arrangement of them under distinct heads. Many outlines for such a classification have been suggested. But that which has been generally adopted as most convenient in practice, is the fivefold division into *Genus*, *Difference*, *Species*, *Property*, and *Accident*.

The reflecting mind discovers that the general notions it has formed bear a certain relation to each other. If it conceives of some imaginary common nature as an *entire and independent essence*, (as *Man*, *Triangle*, *Anger*,) it cannot but observe also that this supposed essence is composed of *parts*; that is, that the notion of it may be resolved into more simple and more abstract notions; for instance, the idea of *man* resolves itself into those of *animality* and *rationality*; *triangle* into *figure* and the quality of *having three sides*; *anger* into *mental perturbation* and the *experience of supposed injury*. The mind further perceives that there are other abstract notions of qualities joined to the primary essence; as *risibility*, *tallness*, *nobility*, to *man*; the *having three angles*, the *being equilateral*,

to *triangle*; the *desire of revenge*, the being *vehement*, or *suppressed*, or *long-continued*, to *anger*.

Hence originates the leading arrangement, which is threefold; the *essence*, the *part of the essence*, and the *quality joined to the essence*. The *essence* consists of two *parts*; of which one is common to it and to other *essences*; as *animality* is common to *man* and *brute*; *figure* to *triangle*, *circle*, *square*, &c.; *mental perturbation* to *anger*, *envy*, *hatred*, *pity*, *love*, &c. The other is *peculiar* to the *essence*, and distinguishes it from all others, and forms it that which it is: as *rationality* distinguishes *man* from all other *animals*; the *having three sides* distinguishes the *triangle* from all other *figures*; the *excitement by supposed injury* distinguishes *anger* from other *passions*.

But the *quality joined* to that *essence* which is supposed to be the subject of an abstract notion may also be twofold: as being either *necessarily* or *contingently* joined with it. Thus with *man*, the idea of *risibility* is *necessarily* joined; those of *nobility*, *poverty*, *tallness*, &c. are only *contingently* joined: with *triangle*, the *having three angles* is *necessarily*, the being *equilateral* or *isosceles*, &c. are *accidentally* joined: so also the *desiring revenge* is *necessarily* joined with *anger*; the being *vehement*, or *lasting*, are *accidentally* joined with it.

Such is the foundation of the metaphysical division of abstract ideas and universal natures into the five classes above enumerated. And hence also the correspondent logical division of common nouns or predicables, distinguished by the same terms: namely,

The *Species*, which expresses the whole *essence*.

The *Genus*, which expresses the common or material part of the *essence*.

The *Difference*, which expresses the distinguishing or formal part of the *essence*.

The *Property*, which expresses that which is necessarily joined to the essence.

The *Accident*, which expresses that which is accidentally joined to the essence.

Patet hinc 1°. De iis dici *Prædicabile* quibus inest *Universale*. *Genusque* adeo, quod est pluri-um essentialium vel specierum pars communis, de *specie differentibus*, h. e. de diversis speciebus quas ingreditur, dici; ut *animal* de *homine* et *bruto*. *Speciem* vero, de *numero differentibus*, h. e. de diversis individuis, quorum singula habent essentiam speciei vocabulo significatam; sic *homo* de *Socrate* et *Platone* dicitur, et de omnibus, quibus natura inest humana. Reliqua vero *Prædicabilia*, (prout inferius patebit) eâdem de causâ, tam de specie quam numero differentibus dicuntur.

The Predicables belonging to each of these five classes are predicated (or asserted in the same sense) of many things; namely, of all those objects in which the common or universal notion represented by the word is supposed to exist.

The terms which belong to the class of *Genus* express common natures derived not immediately from the comparison of individuals, but from the comparison of several classes or *species* already formed by abstraction from individuals; whence they are technically said to be predicated of things *differing in species*.

Those which belong to the class of *Species*, since they represent the general or common notion of some abstract nature conceived to exist in a number

of different *individuals*, are said to be predicated of things *differing in number*.

Those which come under the heads of *Difference*, *Property*, and *Accident*, are said to be predicated of things *differing either in species or in number*, because they may have immediate reference either to a *Genus*, in which case they are predicated of all the species comprehended under that genus; or to a *Species*, in which case they are predicated of the individuals from which that species is derived.

Et N. B. ex recepto more loquendi, Genus et Speciem *prædicari* in (i. e. respondere quæstioni factæ per) *Quid*; Differentiam in *Qualequid*; Proprium et Accidens in *Quale*.

If it be asked, *Quid* est illud? it may be answered by the *Species*: It is a *man*; a *triangle*; *anger*: Or by the *Genus*: It is an *animal*; a *figure*; a *mental perturbation*.

If it be asked, *Qualequid* est illud? What is the *quality or attribute most allied to its essence*? the answer is made by the *Difference*: It is *rational*; it is *three-sided*; it is *excited by a sense of injury received*.

If it be enquired, *Quale* est illud? the answer may be made by the *Property*: It is *risible*; it *has three angles*; it *seeks revenge*. Or by some of its *Accidents*: It is *tall*, or *learned*, or *virtuous*; it is *rectangular*, or *large*, or *equal to a given parallelogram*; it is *vehement*, or *just*, or *excessive*.

Unde facile est conficere vulgatas Prædicabilem definitiones. Nam Genus definitur, Prædicabile quod prædicatur de pluribus specie differentibus in *Quid*. Differentia, quod de plu-

*ribus specie vel numero differentibus in Qualequid &c.*

These quaint and redundant definitions are derived from the characteristics given in the three preceding paragraphs.

1. A Genus is a *Predicable*, predicated in Quid, of several things differing in species, as the material or common part of their essence:

Thus, *Animal* is a Genus, predicated in Quid, (i. e. expressing the nature or substance of the things signified,) concerning several classes or common natures, (i. e. several things differing in species, as *man*, *bird*, *beast*, *fish*, &c.) as the material or common part of their essence: the attribute of *animality* being alike essential to all those species.

*Beast* is the Genus comprehending *horses*, *cows*, *lions*, *tigers*, *bears*, *dogs*, *deer*, *elephants*, &c. &c.

*Fish* is a Genus comprehending *salmon*, *whale*, *shark*, *eel*, *lobster*, *crab*, *trout*, *herrings*, &c.

*Substance* comprehends *body* and *spirit*.

*Figure* is predicated of *squares*, *circles*, *triangles*, &c. &c.

*Metal* applies to *gold*, *silver*, *tin*, *iron*, *lead*, &c. &c.

*Weapon* to *sword*, *pistol*, *blunderbuss*, *dagger*, *club*, &c. &c.

2. *Difference* is a *Predicable*, which is predicated in Qualequid, of several things which differ either in species or in number, expressing the formal or distinguishing part of their essence. It is the term which expresses the primary characteristic attribute of any species; which distinguishes it from every other species contained under the same genus, and is the source of its other qualities or properties.

The *Difference* or distinguishing attribute of *Animal* is *sensation*, which distinguishes it from *inanimate body*, whether *vegetable* or otherwise. *Extension* is the difference of *body*, distinguishing it

from every incorporeal substance. Reason distinguishes man from brutes. The having only three sides distinguishes triangles from squares, polygons, and every other species contained under the common Genus, rectilinear figure.

3. Species denotes that class of predicables which is predicated in Quid, of several things differing in number, as expressing their whole essence.

Thus, City is a species including London, Oxford, Paris, Athens, Rome, &c.

River, includes the individuals, the Thames, Isis, Cam; the Tyber, the Danube, the Halys, &c.

Man, is the name of a species comprehending Socrates, Plato, Aristotle, Zeno, Cratippus; Musæus, Homer, Virgil, Milton; Thucydides, Herodotus, Livy, Tacitus, Hume, &c.

Star, applies to the Polar Star, to Arcturus, Bootes, Sirius, Aldebaran, &c.

4. Property, is the kind of Predicable predicated in Quale, of several things differing in species or in number, (in other words, predicated either of different species or of different individuals,) as necessarily joined to their essence. It is a quality inseparable from that of which it is predicated, but it does not constitute part of its essence. It is therefore a secondary and dependent attribute of the genus or species to which it belongs, usually (perhaps invariably) flowing as a consequence from the primary attribute or difference.

The Property of Man is risibility, which is the result of his essential quality, rationality.

The Property of a Triangle is the having three angles, which necessarily proceeds from its distinguishing part, or difference, having three sides.

The Property of Anger may perhaps be conceived to consist in the desire of revenge which accompanies it, and which is the effect of the sense of injury received.

It requires an accurate acquaintance with the nature of things to ascertain all the *predicables* which bear relation to them. A moderate knowledge of their nature will often suffice to enable us to refer the *species* to its true *genus*. But it is difficult to decide which, among the various attributes and characteristics of any particular class of beings or of notions, is really the essential attribute, and the occasion of the inferior attributes: i. e. which constitutes the Difference and which the Property. We readily refer *gold, silver, &c.* to the genus of *metal*; *horse, cow, &c.* to the genus of *animal*; *tulip, rose, &c.* to the genus of *flower*. But it is impossible, in the present state of our knowledge of these subjects, to decide which is that individual quality which essentially distinguishes each of those species from the other species comprised under the same genera. Naturalists are therefore compelled either to enumerate all the distinguishing qualities they can discover in each; or to adopt an arbitrary mark of distinction instead of the essential difference.

5. *Accident*, is that which is predicated in Quale, of several things differing specifically, or numerically, as contingently joined to their essence.

E. g. *Strength, learning, experience, virtue, speed, beauty, wealth, &c.* are accidents or contingent qualities to man.

*Whiteness, blackness, cleanliness, height, extent, &c.* are accidents to a house, a wall, &c. &c.

<i>Species.</i>	Body.	Proposition.
<i>Genus.</i>	Substance.	Sentence.
<i>Difference.</i>	Having solid extension.	Declaratory.
<i>Property.</i>	Moveable.	True or False.
<i>Accidents.</i> }	White.	Important.
	Large.	Trifling.
	Heavy.	Elegant.
	Opaque.	Short.
	&c. &c.	&c. &c.

<i>Genus.</i>	<i>Speaker.</i>	Water from clouds.
<i>Difference.</i>	Understanding the art of per- suasion.	Falling in drops.
<i>Species.</i>	Orator.	Rain.
<i>Property.</i>	Apte, distincte, or- nate dicens.	Fertilizing the earth.
<i>Accidents.</i> {	Grecian.	Cold.
	Roman.	Violent.
	Vehement, &c.	Excessive, &c.
<i>Genus.</i>	<i>Surface.</i>	<i>Figure.</i>
<i>Difference.</i>	Bounded by one or more lines.	Having three sides.
<i>Species.</i>	Figure.	Triangle.
<i>Property.</i>	Enclosing space.	Having three an- gles.
<i>Accidents.</i> {	Large.	Equilateral.
	Small.	Isosceles.
	Smooth. &c. &c.	Equal to such or such a figure, &c.

Patet 2°. *Genus* esse *Totum* quiddam, nempe *Logicum*, sive in modo loquendi; quatenus continet (i. e. prædicationis ambitu complectitur) species tanquam *partes* sui *subjectivas*. *Speciem* quoque *Totum* esse, nempe *Metaphysicum*, sive in modo concipiendi; quatenus continet (i. e. ad perfectionem sui postulat) *Genus* tanquam *partem* sui *essentialem*. Unde *Differentia* Generi accedens, dicitur *Genus* ipsum *dividere*, quatenus ejus significata distinguit, et *speciem constituere*, quatenus ejus essentiam complet.

A *Genus* is (logically speaking) a *whole*, the parts of which consist of the several species which that genus comprises, or of which it is predicated: Thus, *Animal* is a whole class, comprehending the species *man* and *brute*; of which it may be said, *All men are animals: all brutes are animals. Rectilineal figure* comprehends *triangles, quadrilaterals, and polygons*; the individuals under all these species being included in that genus.

A *Species* is (metaphysically speaking) a *whole*, since it denotes an essence comprehending as its parts the Genus and Difference; or a complex notion, consisting of the simple or less complex notions of the Genus and the Difference. Thus the idea of *Man* is formed by the combination of the ideas *animal* and *rational. Rhetoric* includes the two notions of *science* as its Genus, and *employed in discovering what is persuasive* as its Difference.

Many species have no appropriate name, but are expressed by the combination of their constituent parts, the Genus and Difference: for instance; *passive-quality, rectilineal-figure, right-angled-triangle, port-wine, greenfinch.*

#### §. 6. *De Prædicabilium Speciebus.*

**GENUS** aliud *Summum*, aliud *Subalternum* est: *Species* quoque, in *Subalternam* et *Infimam* distinguitur. Genus summum, est quod nulli, Species infima, quæ omni cognato Generi subjicitur: Genus vel Species subalterna, quæ et cognato Generi subjicitur, et de cognatâ Specie prædicatur. Voco autem *Cognata*, quæ ex iisdem Individuis perpetuâ abstractione colli-

guntur; ut *Homo, Animal, Vivens, Corpus, Substantia*: quæ ex *Socrate, Platone &c.* expurgatis continue differentiis oriuntur.

It has been seen that the mind does not rest satisfied with the primary classification of individual objects. It proceeds to compare its abstract notions with each other, and to classify *them* also in the same manner. This process continues, until it has reduced every thing to one, or at the most to two general heads; for some proceed no further than *substance* and *quality*, as two collateral universals: while others, conceiving of the one as *that which exists independently of any other created thing*; and of the other as *existing only in connexion with some subject*, class them both under the notion expressed by *being*.

This most abstract notion is both the immediate genus comprehending *substance* and *quality*; and the ultimate genus of all those other intermediate notions through which the mind has, by perpetual abstraction from the original individuals, at length attained to it. It is therefore called the *highest*, the *ultimate*, or the *most universal* genus. It may be predicated of every cognate term; but no cognate term can be predicated of it.

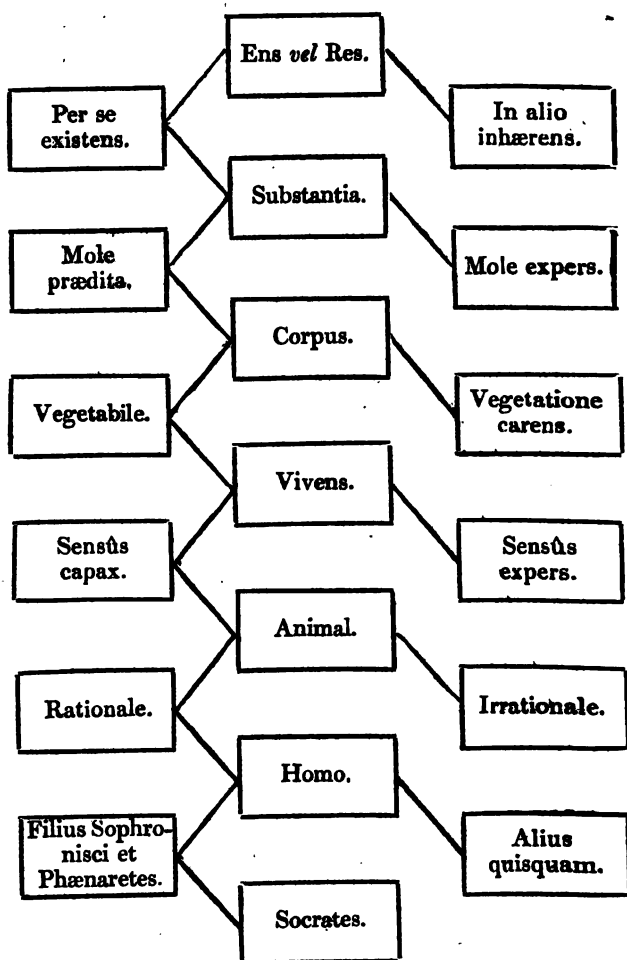
On the contrary, the first common nature of which the mind forms a conception from the comparison of individuals, is called the *lowest*, *primary*, or *most specific* species. Every cognate term may be predicated of it; but it cannot be predicated universally of any cognate term.

All the intermediate notions, (as well as the words which represent them,) are called *subaltern*. Like the intermediate steps in a ladder, each is at once superior to some, and inferior to others; each may be employed as the prædicate comprehending some less abstract cognate terms, and as the sub-

ject included in some more abstract cognate terms; each is a *genus* in relation to some *lower species*; and a *species* in relation to some *higher genera*.

Thus, the name *Being*, which denotes the *universal* or *highest Genus*, may be employed as the predicate in any proposition of which any one of its cognate terms forms the subject: as, All *substances* are *beings*; all *bodies*, all *animals*, all *men* exist or are *beings*. On the other hand, every cognate term may be asserted or predicated of the lowest species, as *lion*: for example; it is true that all *lions* are *quadrupeds*, are *beasts*, are *brutes*, are *animals*, are *living things*, are *corporeal*, are *substances*, are *beings*. But the word *animal*, which is a *subaltern* term, may be predicated of some of the terms which express notions in the same train of successive abstraction; as, all *lions*, all *quadrupeds*, all *beasts*, all *brutes* are *animals*: and may also form a subject of which other cognate terms may be predicated; as, all *animals* are *endued with life*, are *corporeal*, are *substances*, are *beings*. In relation to these terms of which it is the subject, it bears the character and name of a *species*: in relation to the former, of which it is predicated, it bears the character and denomination of a *genus*.

This may be illustrated by a scale somewhat similar to that which was adopted by Porphyry for a different purpose, and which has acquired the name of Arbor Porphyriana. In this scale *Ens vel Res* is the highest genus: *Homo* the lowest species: the other terms in the same column are subaltern terms. On the left hand are the logical *differences* which distinguish each species from the collateral species belonging to the genus immediately above it: on the right hand are the differences of those collateral species which are not specified in the scale.

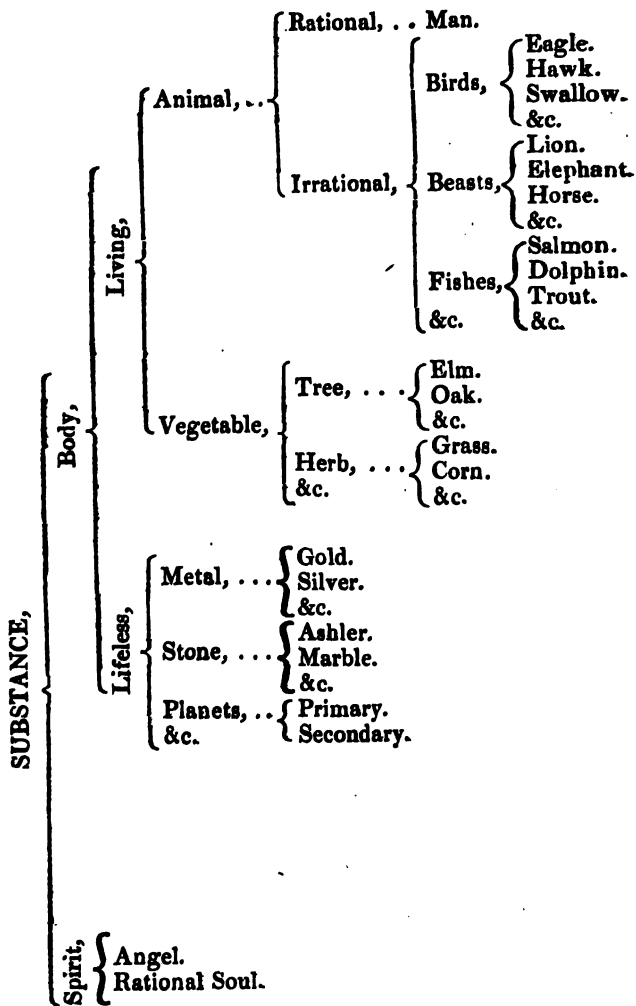


There is no *actual* difference between *Subaltern Genus*, and *Subaltern Species*; for both the terms receive the same definition, and both apply to the same thing. The distinction therefore is only *relative*. Thus, *Animal* is both a Subaltern Genus and a Subaltern Species. It is the former, in relation to *Man*; it is the latter, in relation to *Living-thing*, to *Body*, to *Substance*, and to *Being*.

In the subsequent illustrations *Substance* will (for the sake of greater simplicity) be considered as the highest Genus.

<i>Highest Genus.</i>	} Substance.	Substance.	Substance.
<i>Subaltern Genera and Species.</i>	{	Spirit.	Body.
		Disembodied Spirit.	Animal.
			Brute.
			Beast.
			Quadruped.
<i>Lowest Species.</i>	{	Dog.	Plum-tree.
		Hound.	
		Angel.	Green-gage-tree.
		Grey-hound.	

The following table, though far from complete, will serve to illustrate the nature of that classification which is the result of repeated abstraction. The first word denotes the highest Genus; the names in the last column are chiefly lowest Species; the intermediate columns contain the cognate Subaltern Genera or Species.



The following are instances of Subaltern Genera and Lowest Species.

BIRDS,	Land-birds,	Rapacious . . . . .	{ Vulture. Falcon. Owl. &c.
		Pies . . . . .	{ Parrot. Hornbill. Crow. &c.
		Gallinaceous . . . . .	{ Cock. Turkey. Pheasant. Partridge. &c.
		Columbine . . . . .	Pigeon. &c.
		Passerine . . . . .	{ Thrush. Finch. Lark. &c.
		Struthious . . . . .	{ Dodo. Ostrich.
	Water-fowl,	Cloven-footed . . . . .	{ Heron. Snipe. Plover. &c.
		Pinnate-footed . . . . .	{ Phalarope. Grebe. &c.
		Web-footed . . . . .	{ Duck. Diver. &c.

Quare 1. *Differentia* est vel *Generica*, quæ constituit Speciem Subalternam; vel *Specificæ*,

quæ infimam: hæc est quæ de numero differentibus, illa, quæ de specie differentibus prædicatur. Exempla, *Sensibile* et *Rationale*.

The *difference* joined with the *genus* constitutes a *species*. If that species be *subaltern*, (such as is also a *genus* to some subordinate species,) the *difference* which constitutes it is denominated *generic*, and is predicated of all these subordinate species: thus, the difference, *occupying space*, is predicated of every thing concerning which *body* is predicated; namely, of the two species *animate* and *inanimate*. But the *difference* which constitutes a *lowest species* is called *specific*; and it applies to the individuals comprehended under the species; that is, it is predicated of things differing numerically. Thus *rational* is predicated of all the individuals to which the name of the species *man* applies.

<i>Genus.</i>	<i>Difference.</i>	<i>Species.</i>
Substance.	Material or occupying space.	Body.
Body.	Having life.	Living thing.
Living thing.	Animate.	Animal.
Animal.	Suckling their young.	Mammalia.
Mammalia.	Having six conical teeth in each jaw.	Feræ.
Feræ.	Fore teeth equal: tongue prickly: & claws retractile.	Felis.
Felis.	Yellow black-streaked skin.	Tyger.

In column 1, the first line contains the highest genus; the others, subaltern genera.

In column 2, the last line contains a specific difference; the rest are generic differences.

In column 3, the last line contains the lowest species; the other lines contain subaltern species.

2. *Proprium* quoque, vel *Genericum* est, quod necessario comitatur essentiam Generis summi vel subalterni; atque ex illâ adeo fluere atque oriri dicitur; vel *Specificum*, quod fluit ab essentiâ speciei infimæ. Illud itaque de pluribus speciebus; hoc, de unâ specie et pluribus Individuis prædicatur. Exempla, *Mobile* et *Risibile*.

The distinction of *Property*, as *generic* or *specific*, is of the same nature as that of *Difference*. *The having three angles*, being the property of the subaltern genus *Triangle*, is a *generic* property: *the equality of the square of the hypothenuse to the squares of the sides*, being the property of the lowest species *right-angle-triangle*, is a *specific* property. Each kind of property is predicated of the same as the essence of which it is the property: hence the property of a subaltern genus is predicated of all the *species* comprehended in that genus: that of a lowest species is predicated of all the *individuals* which partake of the nature of that species.

*Shape* is the *generic* property of *Body*.

*Growth* . . . . . of *Living thing*.

*Voluntary motion* . . . . . of *Animal*.

*Risibility* is the *specific* property of *Man*.

*Proprium* tamen aliunde quadrifariam dicitur. 1. Quod convenit soli, sed non omni; scil. soli Speciei, sed non omni ejus Individuo; ut *homini esse grammaticum*. 2. Quod omni, sed non soli; ut *homini esse bipedem*. 3. Quod omni et soli, sed non semper; ut *homini cane-*

*scere.* 4. Quod omni, soli, et semper; ut *homini risibilitas*. Hujusmodi Proprium est, quod constituit Quartum Prædicabile.

*Property*, taken in a vague and less determinate sense, may signify that quality which agrees to a genus or species, either

1. *Soli sed non omni*: as *philosophy, reading, writing, the hope of a future existence, literature, virtue, prudence, &c.* to *Man*.

Or, 2. *Omni sed non soli*: as *malleability, fusibility, yellow colour, weight, value, &c.* to *Gold*.

Or, 3. *Omni et soli, sed non semper*: as *the act of laughter or speaking, &c.* to *Man*.

Or, 4. *Omni, soli, et semper*: as *the faculty of laughter or of speech, to Man; shape or divisibility to Body*.

It may be doubted whether the third of these kinds of property can exist. An act (as that of *speaking or laughing*) cannot correctly be esteemed a property. In the instance given in the text there is an ambiguity. The *state* of hoariness may befall man *alone*; it does not belong to man *always*; but it certainly does not befall *omni*, every individual of the species. The *liability* to hoariness may perhaps be predicated of man *alone*; but it is probable that *all men* are liable to become hoary at all times: great alarm, for instance, will produce it even in very young persons.

*Accidens*, cum essentiæ junctum sit continenter, adesse igitur vel abesse potest, salvâ interim essentiâ subjecti; cui tamen aliquando tam tenaciter inhæret, ut cogitatione solâ divelli atque separari possit; ut *Mantuanum esse, a Virgilio*. Quare vocatur *Inseparabile*. Quod

autem actu sive reipsâ separari potest, ut albedo a pariete, dicitur *Separabile*.

The *place of birth*, the *parents*, the *past events of life*, &c. are *inseparable* accidents to any *individual man*. His *dress*, *posture*, *residence*, *opinions*, &c. are *separable* accidents.

That a *particular triangle is equal to another figure* is an *inseparable* accident; for if that equality be removed, the triangle is no longer the same.



The *PREDICAMENTS* or *CATEGORIES* are a certain enumeration of the several classes under which all abstract ideas, and their signs, common words, may be arranged. They are as follows:

1. *Substance*; either *material* or *immaterial*.
2. *Quantity*; either *continuous*, as lines, solids, surfaces, or as time; or *discrete*, as number, &c.
3. *Quality*; either *innate*, as the natural faculties; or *acquired*, as virtue, learning; or *sensible*, as form, sounds, colours, &c.
4. *Relation*; including the two *correlatives* and the *principle* of the relation.
5. *Action*.
6. *Passion*; including the transition either from *one place to another*, or from *one state to another*.
7. *Place*.
8. *Time*, past, present, and future.
9. *Posture*, whether *quiescent* or *active*.
10. *Habit* or *covering*; either *proper*, as *dress* to man, *skin* to beasts; or *figurative*, as *leaves* to trees.

They are enumerated and exemplified in these verses:

Summa decem : Substantia, Quantum, Quale,  
 Relatio,  
 Actio, Passio, Ubi, Quando, Situs, Habitus.  
 Presbyter exilis, specie pater, orat et ardet,  
 In campo, semper rectus, et in tunicâ.

This classification was introduced by Archytas, and adopted by Aristotle. An acquaintance with it is useful, chiefly because it is so often alluded to both in ancient and modern writings.

### §. 7. *De Divisione.*

**QUEMADMODUM** Vox Singularis dicitur *Individuum*, ita et Communis *Dividua* dici potest. Eam enim per Metaphoram dividere dicitur, qui plurâ ejus significata recenset; nam in uno multa distinguit. Ita qui *animal* dicit esse (i. e. vocabulum animal *significare*) *hominem* et *brutum*, dicitur *animal* in *hominem* *brutumque* *dividere*.

Quare *Divisio* est distincta enumeratio plurium quæ communi nomine significantur : Estque analogâ distributioni totius in partes.

Logical *Division* is *The distinct enumeration of the several things which are signified by a common name.* Though it is *analogous* to Physical Division, or the distribution of a whole into its parts, yet the two kinds of Division are totally distinct in their nature, and must by no means be confounded with each other.

The physical division of *a tree* consists in its distribution into *trunk, root, branches, leaves, &c.*; but the logical division of *tree* is into *fruit-trees* and

*timber-trees*; each of which may be further divided; the former (to omit intermediate divisions) into *apple-trees, vines, orange-trees, &c.*; the latter into *oak, elm, ash, &c.*

Logical division may be thus distinguished from physical division. In the former the *divided-whole* may be universally predicated of each of the *dividing members*; as *all elms, all oaks, all beeches, &c.* are *timber-trees*: *all men, all brutes, are animals*. But this cannot take place in the latter. Moreover, physical division can be applied to *individuals* only; logical division only to *classes*.

*Animals* may be logically divided into *Rational* and *Irrational*:

Or into *Gressilia, Volatilia, Natatilia, Reptilia,* and *Zoophyta*:

Or into *Mammalia, Aves, Amphibia, Pisces, Insecta,* and *Vermes*:

Or into *cold-blooded* and *warm-blooded*.

*Gressile Animals* may be divided into *Bipeds* and *Quadrupeds*.

*Mental operations* are either acts of *Simple Apprehension, of Judgment, or of Reasoning*.

*Virtues* are classed under the heads of *Prudence, Justice, Fortitude, and Temperance*.

Or thus: *Virtues* are *moral* and *intellectual*. *Moral excellencies or virtues* are *courage, temperance, liberality, magnificence, magnanimity, meekness, courtesy, veracity, facetiousness, modesty, justice*. *Intellectual excellencies* are *art, science, wisdom, understanding, prudence*.

The lowest species may be divided either by an artificial classification, or by the enumeration of its individuals. *Man* may be divided into *civilized* and *uncivilized*: *white, black, and of intermediate colour*: *European, African, Asiatic, and American*: *learned* and *unlearned*. *Planets* may be divided into *those attended by satellites* and *those without satellites*; or by the enumeration of *Mercury, Venus, Mars, &c.*

Unde et nomen ipsum Commune dicitur *Totum Divisum*, et distincta ejus significata, *Partes* sive *membra dividendia*, et bene dividendi leges statuuntur tres.

1. Dividentia sigillatim minus contineant (i. e. arctius significant) quam Divisum. Nam Totum est majus partibus singulis. 2. Dividentia conjunctim plus minusve ne contineant quam Divisum. Nam Totum est æquale partibus universis. 3. Membra Divisionis sint opposita, (i. e. in se invicem ne contineantur:) nam sine distinctione frustra est partitio.

To classify *animals as intelligent and not-intelligent beings*, would offend against the first rule; since each of those classes contains something not included in the word *Animal*.

In the following passage the author (or probably the interpolator) offends against the second rule. "Virtus omnis tribus rebus fere vertitur: quarum una est in perspicendo quid in quâque re verum sincerumque sit: alterum cohibere motus animi turbatos, appetitionesque obedientes efficere rationi: tertium, iis quibuscum congregamur uti moderate et scienter." (Cic. Off. ii. 5.) The parts together do not equal the whole. The virtue of *fortitude* is omitted. "Præterire aliquid maximum vitium in dividendo est."

The common division of the *Operations of the mind* into *Simple Apprehension*, *Judgment*, *Reasoning*, and *Method*, offends against the third rule. *Method* is not opposed to, but is comprised in, *Simple Apprehension*.

"Differentiam Motûs naturalis et violenti maximâ

cum socordiâ introducunt philosophi; cum omnis motus violentus etiam naturalis reverâ sit."

"Quomodo autem philosophus (Epicurus) loquitur tria genera cupiditatum? *naturales et necessarias; naturales, non necessarias: nec naturales, nec necessarias?* Primum divisit ineleganter; duo enim genera quæ erant, fecit tria. Hoc non est dividere sed frangere rem. Qui si diceret, cupiditatum esse duo genera, *naturales et inanes*: naturalium quoque item duo, *necessarias et non necessarias*; confecta res esset. Vitiosum est enim in dividendo, partem in genere numerare."

Cicero represents Panætius to be guilty of an offence against the second rule, in his threefold distribution of the subjects of *moral deliberation*; namely, de *honesto*, de *utili*, de *comparatione eorum*. To supply this supposed defect he adopts a more copious enumeration; namely, of *virtue or duty*; of *the relative obligation of different duties*; of *utility*; of *the relative value of different useful things*; and, of *the comparison between duty and utility*. And he adds, "Quam ille triplicem putavit esse rationem, in quinque partes distribui debere reperitur." But does not Cicero err (to use his own language) "partem in genere numerando?" The division of Panætius seems most correct; the *absolute* and the *relative* obligation or usefulness of any actions, being the respective subdivisions of the two general classes, de *honesto* and de *utili*. Cicero appears unintentionally to suggest this arrangement by his mode of summing up: "Primum igitur est de *honesto*, sed dupliciter: tum pari ratione de *utili*: post de *comparatione eorum* disserendum."

Is not the same author inaccurate in his division of Moral Virtue, when he introduces *Prudence* as one of its species; employing that word, not in the sense in which it occurs in other parts of his treatise, and in which it is commonly received; but to denote *the acquisition of science*? He thus

represents it as a part of one of the *subjects of moral deliberation*, and therefore necessarily comprehended under that general head. Yet he afterwards distinguishes between the two as collateral species under the same genus. "*Omnis autem cogitatio motusque animi, aut in consiliis capiendis de rebus honestis et pertinentibus ad bene beateque vivendum, aut in studiis scientiæ cognitionisque versabitur.*"

### §. 8. *De Definitione.*

**DIVISIONEM** excipit (quæ per Metaphoram quoque dicitur) *Definitio*; cujus est, assignare conceptus et voces, quibus ea, quæ ab invicem distincta volumus, velut agrorum fines, ex limitibus suis dignoscantur. Quæ cum definitis notiora esse debeant magisque obvia, *Definitio* vulgo dicitur *Oratio explicativa definiti*. *Oratio* (inquam) ut a nomine distinguatur; *Explicativa* quoque, nam et nomen exprimit.

The most superficial observer must have noticed how vaguely and indefinitely words are commonly employed. To the same word some attach a greater number, others a smaller number of simple notions. Even the same person does this at different times, partly from inadvertency, and partly from necessity; as may be observed in the applications of *ratio* noticed in the illustrations of analogous nouns. Words are moreover often incorrect in their original application, having been primarily employed to represent ideas attained by an inaccurate process of abstraction; as the use of the word *heat* seems to have been derived from the erroneous

consideration of the cause and the effect, as if they were one and the same. So also, *idea, positive and negative electricity, &c.* Hence words are among the chief occasions of inaccurate apprehensions and indistinct judgments. We are so habituated to their use, that we conceive the abstract notions to which they are applied to have been the natural and almost intuitive result of our own reflection, confirmed by universal acknowledgment, and therefore necessarily correct: while we are perhaps only following the vague application adopted by the thoughtless, or by some philosopher imperfectly acquainted with the subject. Hence arises the importance of the distinction between the *primary* and the *secondary* intention of nouns. Hence also arises the necessity of *Definition*. It serves to shew what notions are to be included, and by inference what to be rejected, in each word: and thus to afford as far as possible a precise understanding of its meaning. Even thus, we can but imperfectly succeed in acquiring precision; not only because, in spite of the best definition, the mind will recur to the notions it has been previously used to apply to any particular term; but because the *instruments* of defining are still *words*, and therefore liable to the same ambiguity as the term defined. This circumstance renders a single word wholly incompetent to sustain this office. A synonym may explain, but cannot define a word. A combination of words affords a greater approximation to precision, because the ambiguity in each is in some measure corrected by its connexion with the rest. Even the definition of the term *Definition*, as given in the text, illustrates this ambiguity; since the word *sentence* is there employed, not in its common use, as a combination of words containing and relating to a finite verb: but, as Aristotle often uses it, simply for a combination of words, without the latter limitation.

Definitio alia *Nominalis* est, quæ vocis significationem aperit; alia *Realis*, quæ rei naturam. *Realis* iterum vel *Accidentalis*, sive *Descriptio*, quæ definito accidentia (puta causas, effectus, proprietates, aliaque id genus) assignat; vel *Essentialis*, quæ partes essentiæ constitutivas. *Essentialis* denique, vel *Metaphysica* sive *Logica*, quæ Genus et Differentiam; vel *Physica*, quæ partes essentiæ physicas, i. e. realiter distinctas: nam Genus et Differentia solâ mente distinguuntur.

E. g. Definitur homo *Nominaliter*, qui ex humo. *Accidentaliter*, Animal bipes implume. *Metaphysice*, Animal rationale. *Physice*, Ens naturale constans corpore organico et animâ rationali.

Definition is { Nominal.  
                   { Real { Accidental.  
                           { Essential { Metaphysical.  
   { Physical.

The four *lowest species* of definition are *Nominal*, *Accidental*, *Metaphysical*, and *Physical*.

#### *Definitions of Proposition.*

(NOMINAL.) A *Proposition* is that which is *proposed* to the judgment for its assent or rejection.

(ACCIDENTAL.) A *Proposition* is the vocal or written expression of the act of judgment.

(METAPHYSICAL.) A *Proposition* is a declaratory sentence.

(PHYSICAL.) A *Proposition* is that which consists of a subject, a predicate, and a copula.

(MIXED.) A *Proposition* is a declaratory sentence, grammatical and perfect, signifying something either true or false, and free from ambiguity.

1. *Nominal Definition* (as the term is used by Aldrich) may be called Etymological Definition: and simply explains the original import of the *Word*.

E. g. *Animal cui est anima.*

*Fides ita appellatum est, quia fiat quod dictum est.*

Ὁνομαζέσθαι Δίκαιον, ὅτι δίχην ἴσιν, ἀεπερ ἂν ἂ καὶ δίχην  
δίχαιον, καὶ ὁ Δικαστὴς, δίχαιός.

Ἀπαιδεία, ἐν τῇ ἀπαιδείᾳ διακρίνεται.

Παραλληλῶν λέγεται ὡς ἐν πρὸς ἑαυτὴν αἰρετόν.

*Parallelogram*, a figure composed of *γράμματα παραλληλῶν*.

*Light*, the fluid substance which is *lightest*, or possesses the smallest degree of weight.

*Qui sapientiam expetunt, philosophi nominantur;* nec quidquam aliud est *philosophia*, si interpretari velis, præter *studium sapientie*.

The term *Nominal Definition* is often more extensively applied to every definition of which the object is not to describe the nature of the thing intended by the word, but to explain the mere signification of the word itself. Of this kind are the definitions of the mental operations; of this kind are also all mathematical definitions: their object being simply to avoid ambiguity by stating in what sense each word will be employed; that is, of what notions it is to be the sign. Hence *Nominal Definition* is distinguished from *Real Definition*, which comprehends all the other species, and which professes to describe not only the signification of the word, but the nature also of the *thing* signified.

2. *Accidental Definition*, i. e. *Description*, is one of the species of *Real Definition*. It describes the *thing* denoted by any word, by assigning some

characteristic, though not primary, qualities belonging to it. It is frequently the only method in which we can define a word, or thing, in consequence of our ignorance both of the natural and component parts, and of the metaphysical parts, especially of that leading quality which constitutes the Difference. Thus we *define* or rather *describe* plants, minerals, animals, &c. &c. by an enumeration of their respective qualities or accidents. E. g. *Silver*, a metal of a white colour, less ductile than gold; more elastic than gold, lead, or tin, but less so than copper, &c. &c.: *Dog*, a quadruped distinguished by six fore teeth and six grinders in the upper jaw, and six fore teeth and seven grinders in the lower jaw.

*Accidental Definitions.*

*A Clock* is a mechanical contrivance to shew the progress of time.

*Heat* is the sensation produced by approaching fire.

*Animal*, an organized living body, endued with sensation.

*Animal*, a body which can move itself from place to place.

*Dog*, the most intelligent, and faithful, and affectionate of domestic animals.

*Honey*, a viscous substance, of a whitish or yellowish colour, sweet to the taste, soluble in water, and becoming viscous on fermentation, inflammable, liquable by a gentle heat, and of a fragrant smell.

*Tree*, that which shoots out into leafy branches.

*Ink*, a liquid used for the purposes of printing and writing.

*Light*, the material medium of sight.

The collateral species of *Real Definition* are *Accidental* and *Essential*. The latter is of a more

perfect nature than the former, since it assigns the *primary* and *essential* qualities or parts of the thing to be defined. But the parts or qualities thus assigned may be twofold, namely either the *natural* and *constituent* parts of each individual comprehended under the common name; as the *wheels*, the *balance*, the *spring*, the *graduated dial*, the *hands* &c. of a *watch*; or the *imaginary* and *metaphysical* parts which complete the abstract notion represented by the word, namely, the Genus and the Difference; such as the notions of *time-keeper*, and, *adaptation to the pocket*, which are the metaphysical parts of *watch*, and suggest the definition, *a pocket time-keeper*. This species of *essential* definition is therefore denominated *logical* or *metaphysical*; the other, *physical* or *natural*.

### 3. Logical or Metaphysical Definitions.

Προαιρέσις, Βουλευτική ὁρεξις τῶν ἐφ' ἡμῖν.

Ἀκολασία, Ἡ ἀμαρτία παιδική.

Ἀκολασία, Ἡ περὶ ἡδονῶν ὑπερβολή.

Ἄσματος, Ὁ περὶ χεῖματα ὑπερβάλλον.

Light, air reduced to its most subtle state.

Animal, vivens sensibile.

Belief, assent produced by apparent credibility.

Knowledge, assent produced by self-evidence, or demonstration.

Tree, a plant which supports itself by a stem.

Parallelogram, a four sided figure, the opposite sides of which are parallel.

Ἐστὶν ἡ ῥητορικὴ, δύναμις περὶ ἅστοι τοῦ διαρῆσαι τὸ ἐνδεχόμενον πιθανόν.

Ἡ ὀλιγωρία ἐστὶν ἐνέργεια δόξης, περὶ τὸ μηδενὸς ἄξιον φαινόμενον.

Πραῦνσις ἐστὶ κατάστασις καὶ ἡρέμησις ἐργῆς.

Πραότης ἐστὶ μισότης περὶ ἐργας.

Medium Officium, id est, quod, cur factum sit, ratio probabilis reddi possit.

4. *Physical Definitions.*

*Animal*, a living body, consisting of head, body, legs, &c.

*Tree*, that which consists of root, trunk, branches, leaves, and sap.

*Chair*, a machine which is composed of legs, a seat, and a back.

*Ink*, a mixture of copperas, gall, and gum.

*Bonæ Definitionis leges potissimum tres sunt.*

1. *Definitio sit adæquata definito: alias non explicat definitum. Quæ enim angustior est, explicat tantum partem, cum definitum sit totum; quæ laxior, explicat totum, cum definitum sit tantum pars.* 2. *Ut per se clarior sit et notior definito: alias non explicat omnino. Dico tamen per se, quia per accidens potest minus intelligi quod notius est suâ naturâ.* 3. *Ut justo vocum propriarum numero absolvatur: nam ex metaphoris oritur ambiguitas, ex nimâ brevitate obscuritas, ex prolixitate confusio.*

1. *If man be defined an intelligent being; or a tree, an erect plant having foliage: such definitions are erroneous; inasmuch as they describe a whole of which the defined term is but a part: in opposition to one branch of the first rule.*

*If man be defined a civilized rational creature; the first rule is disregarded, by the limitation which excludes uncivilized man. The definition of enthusiast, as one whose feelings are either unduly or excessively engaged in religious matters, is too limited, since the term defined includes also those whose*

feelings are excessively or unduly excited by any object whatever.

2. The following definitions offend against the second rule.

*Apple*, the fruit of the apple-tree.

*The right hand*, not the left.

*Net-work*; any thing reticulated or decussated with interstices between the points of intersection.

*Judgment*; that which is expressed by the combination of words into a sentence.

*Triangle*; a figure which has any of its exterior angles equal to its two interior and opposite angles.

*Definitio*, Oratio explicativa definiti: for of cor-relatives the one cannot be better known than the other. Therefore neither of the words *definitum* and *definitio* can be properly used in an explanation of the other.

Words expressing less complicated ideas are in fact (or, *per se*) more perspicuous than those which express the more complex ideas. Hence, though use has rendered the word *man* more familiar to us than the words *rational animal*, these are in their own nature more clear and better known.

The same may, perhaps, be said in defence of Dr. Johnson's definition of *net-work*, with the exception of the word *reticulated*.

Words expressive of ideas purely simple cannot be properly defined. Hence the definitions of the operations of the mind are less clear, or at the best not more clear than the operations themselves: they in fact do little more than substitute one denomination for another.

3. Definitions should be expressed in a suitable number of words; in opposition to prolixity or excessive brevity. The following are consequently improper.

*Money* is that useful species of property, which,

by serving as a common measure by which all the necessities, all the conveniences, and all the luxuries of life may be estimated and procured, becomes itself the great essential, and comprises within itself all that can be thought needful to render life desirable.

*Money is coin.*

Definitions should be expressed in *proper* (as opposed to *metaphorical*) words. The following are therefore improper:

*Money* is the servant of the wise and virtuous, but the master of the wicked and the unwise. In the hands of the former it is the tool or instrument by which he performs innumerable acts of virtue; while in the hands of the fool it is the productive root of vice, shame, and misery.

*Judgment* is an operation by which the mind, sitting on a tribunal, passes sentence on the agreement or disagreement of any two objects.

## CAP. II.

## DE PROPOSITIONE CATEGORICA PURA.

§. 1. *Quid sit Propositionis.*

SECUNDA Pars Logicæ agit de *Propositione* sive *Enuntiatione*; quod est signum secundæ operationis Intellectus, sive *Judicium* verbis expressum.

Quare, ad Propositionem legitimam requiritur

1. Quoad vocem, ut sit *Oratio affirmans vel negans*, quæ est ejus *essentia*.

2. Quoad sensum, ut *verum vel falsum significet*, (id scil. quod res est, vel secus, dicat,) quod *essentiæ* necessario nexum, et proinde *proprietas* est. Unde et

3. Non est ambigua; sic enim orationes easet. Nec 4. Solæca vel mutila; sic enim nihil significaret.

1. The definition *A sentence which either affirms or denies*, or, *A declaratory sentence*, comprises the whole essence, or the complete abstract notion of *Proposition*. For *Propositions* form one of the species comprehended under the genus, *Sentence*; and they are distinguished from all the collateral species, as interrogatory, imperative, &c. by the difference *declaratory*, or *indicative*; that is, expressing either an affirmation or a negation.

The following sentences are not declaratory; and consequently are not propositions.

*Can envy dwell in heav'nly breasts ?*

*Tu modo posce deos veniam.*

*Hic murus aheneus esto,*

*Nil conscire sibi.*

*Heu ! hominum ignaræ mentes !*

*Quando fortuna non mutat fidem !*

*Da spatium vitæ, multos da, Jupiter, annos.*

The following, on the other hand, are *Propositions*; since they either affirm or deny:

*Deep disappointment lurks in every prize.*

*Est modus in rebus.*

*Nullus argento color est, nisi temperato splendeat usu.*

*Quod honestum non est, id non decet.*

Propositions are frequently so combined as to form a complex sentence; as,

*Squares and triangles are rectilinear figures: i. e. Squares are rectilinear figures; and, Triangles are rectilinear figures.*

*Unsought advice is the dictate of presumption, and appears to convey implicit censure:* which contains two propositions, each predicating something different concerning the subject, *Unsought advice*.

*Neither death, nor life, nor angels, nor principalities, nor powers, nor things present, nor things to come, nor height, nor depth, nor any other creature, shall be able to separate us from the love of God.* This sentence contains as many propositions as there are subjects; the same predicate, *shall be able, &c.* being applied to each.

2. The quality of *necessarily signifying either that which is true or that which is false*, is the logical property of a Proposition. For it is the immediate and natural consequence of its difference, namely, affirmation or negation.

To *be true or false* is the property of *Judgment*; to *signify what is true or false* is therefore the pro-

perty of Propositions. Those epithets are improperly used, when applied to any operation of the mind not comprehended under judgment.

3. An *ambiguous* sentence is in fact a *double* sentence. Of such propositions the heathen oracles afford many instances. Ambiguity may be occasioned either by the equivocal sense of the words, or by the dubious construction of the sentence. Thus, *Κρείσας* "Αλυσι διαβὰς μεγάλην ἀρχὴν καταλίψου.

The clause, *Dum pelago desævit hyems*, (*Æn.* iv. 52.) when not limited and explained by its context, may signify, *While the storm is raging*; or, *Till the storm cease*. Thus also, *Nec, dum desæviat ira, expectat*. (*Luc.* v. 303.)

*Οὐβῆας μὲν πρῶτον ἐπ' ἄλλους*: (*Il.* I. 50.) i. e. *He first attacked the mules*; or, according to some critics alluded to by Aristotle, *the sentinels*.

*Hædorumque gregem viridi compellere hibisco*: (*Virg. Ecl.* ii. 30.) *To lead the flock to the green mallows*: or, to drive them with a green rush or twig.

*ὦ γύναι, λάλει σπαθῆς*. You are very diligently weaving, or, you are living very extravagantly. (*Aristoph. Nub.* 55.)

4. The *ungrammatical* expressions of the illiterate are not real propositions; nor are any combinations of words in which there is not a distinct subject, predicate, and copula, either expressed or obviously implied. *A word to the wise*, is mutilated and incomplete in form, but not in sense. The same ellipsis is adopted in the Latin, *Verbum sat sapienti*. The corresponding French proverb is complete in form as well as in sense, *Le sage entend a demi-mot*.

Quare, ea demum Propositio legitima censetur, quæ juxta definitionem vulgatam, est *Oratio Indicativa, congrua et perfecta, verum vel falsum significans, sine ambiguitate*.

## 74 PROPOSITIONUM SPECIES.

This definition is of a mixed nature. It would have been more accurate if limited to the strictly logical definition, *a declarative sentence*. The property ought not to form a part of the definition, but to be deduced from it. The prohibition of ambiguous, ungrammatical, and imperfect sentences, is a highly important rule, or inference from the definition, but should not be represented as a part of it. If a sentence be not grammatical, entire, and of a determinate sense, it cannot be *declaratory*.

### §. 2. *Propositionum Species.*

**EJUS** Divisiones variæ sunt.

PROPOSITIONS are divided according to their	Substance, into	Categorical, . .	{	Pare.
			{	Modal.
	Quality, namely,	Hypothetical, . .	{	Conditional.
			{	Disjunctive.
		Essential, into	{	Affirmative.
			{	Negative.
	Quantity, into	Accidental, into	{	True.
			{	False.
		Universal.		
		Particular.		
Singular.				
Indefinite.				

1. *Categorica* est, quæ enuntiat absolute; ut, *Homo est risibilis*. *Hypothetica*, quæ sub conditione; ut, *si homo est rationalis est risibilis*. *Vel dies est vel nox*.

Quod *Categorica* dicit, nihilo nexum est; quasi per se subsistens: quod *Hypothetica*, conditioni substat. Unde et hæc Divisio peti dicitur a *Substantiâ* Propositionis; et per ejus

membra respondetur interroganti, *Quæ est Propositio?*

Categorica rursus dividitur in *Puram* et *Modalem*. Hypothetica in *Conditionalem*, *Disjunctivam*, &c. Categorica pura, sive *Propositio de inesse*, est quæ pure affirmat vel negat; i. e. simpliciter dicit Prædicatum inesse, vel non inesse, subjecto; ut, *Homo est animal. Homo non est lapis*. Modalis, quæ cum *Modo*, h. e. vocabulo exprimente quomodo Prædicatum insit subjecto; ut, *Necesse est hominem esse animal. Impossibile est hominem esse lapidem*. De Categoricâ purâ, et quidem solâ, impræsentiarum loquor; de cæteris alibi dicturus.

*Pure Categorical Propositions.*

*Order is the life of despatch.*

*Affected despatch is a most dangerous thing.*

*Nemo est ab omni parte beatus.*

*Is, quisquis est, qui moderatione et constantia quietus animo est, sibi ipse placatus, ut nec tabescat molestiis, nec frangatur timore, nec sitienter quid expetens ardeat desiderio, nec alacritate futili gestiens deliquescat, is est sapiens, is est beatus.*

These propositions purely declare the existence or non-existence, in the subject, of the quality or character denoted by the predicate. In the last sentence, (which contains two propositions,) the quality of *being a wise man*, and that of *being a happy man*, are respectively asserted to be attached to the subject, *is qui moderatione*, &c. The preceding proposition declares that the attribute, *perfect happiness*, does not exist in *any man*.

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### *Categorical Modal Propositions.*

*De quo omnium natura consentit, id verum esse necesse est.*

*Corpus mortale interire necesse est.*

*It is not possible that an unholy man can enter heaven.*

*It was necessary that the patterns of things in the heavens should be purified with these : but the heavenly things themselves with better sacrifices than these.*

*Riches may possibly be applied to the best of purposes.*

*Fortune probably depends more on external accidents than on human sagacity.*

*It is obvious that such propositions may be considered as pure categoricals. For the sense of the word by which the mode is expressed may be conveyed by joining a correspondent adverb to the predicate ; or the modal word may be considered as the predicate, the leading portion of the sentence being the subject. Thus it may be said, *Corpus mortale est res necessario-interitura* ; or, *Corpus mortale interire est res-necessaria*. The application of riches to the best of purposes is a thing possible. That fortune depends more on external accidents than on human sagacity is a probable fact.*

### *Conditional Hypothetical Propositions.*

*Ambitious men, if they be checked in their desires, become secretly discontent.*

*Cum consequens aliquod falsum est, illud cujus consequens est non potest esse verum.*

### *Disjunctive Hypothetical Propositions.*

*Studies serve for delight, for ornament, or for ability.*

*Aut Epicurus, quid sit voluptas, aut omnes mortales, qui ubique sunt, nesciunt.*

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2. *Affirmativa*, est cujus Copula affirmativa est; ut, *Homo est animal*. *Non progredi est regredi*. *Negativa*, cujus negat; ut, *Homo non est lapis*. *Nullus avarus est dives*. *Vera*, quæ quod res est dicit; ut, *Homo est animal*. *Falsa*, quæ secus; ut, *Homo est lapis*. Et cum per hasce species bene respondeatur interroganti, *Qualis est Propositio?* (respondent enim per Differentiam et Proprium quæ in quale prædicantur) dicuntur hæ duæ divisiones peti a *Qualitate Propositionis*. Prior a *Qualitate Vocis*, sive *Essentiali*; Posterior a *Qualitate Rei*, sive *Accidentaria*.

### *Affirmative Propositions.*

*Extraordinary expence should be limited by the worth of the occasion.*

*All philosophers profess to aim at the discovery of truth.*

### *Negative Propositions.*

*A modest man cannot allege his own merits.*

*No man can excel in every branch of science.*

*Costly followers are not to be liked.*

*No man can obtain great advantages who is afraid of petty inconveniences.*

The quality of the *word* or *expression* of a proposition constitutes its *essential quality*; because affirmation or negation forms the logical difference or formal part of the *essence*.

The quality of the *thing* or *sense* is the *accidental quality*; because the expression of truth or false-

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hood is the *property*, and consequently only an adjunct to the essence.

When the term *quality* is used concerning propositions, without any distinguishing epithet, the essential quality is signified.

The *essential* quality of a proposition is determined by the *copula*.

A proposition is not negative unless the particle of negation immediately affects the copula. The following propositions are therefore affirmative:

*I will provoke you to jealousy by them that are no people.* (ἐκ' οὐκ ἴθρου.)

*Secuta est honestam causam non honesta victoria.*

*Non injussa cano:* i. e. I sing things not-uncommanded. (Virg. Ecl. vi. 9.)

Ἀποδοκίμαται τὴν τῆς Λευκάδος οὐ περιτρίχισιν.

Αἰτία τοῦ πολέμου ἦν τοῦ Φόρου ἢ οὐκ ἀπόδοσις.

*The man who sinneth not is blessed indeed.*

*He who is not dishonest deserves our esteem.*

It may occur that a proposition, which in itself should be deemed negative, is in the course of an argument employed affirmatively; as if, after having laid down the last position, it should be added, *But the neighbouring miller is not dishonest; he therefore deserves our esteem;* the former of these two propositions must in this connexion be accounted affirmative, the particle being used solely to qualify the predicate *dishonest*: q. d. *The neighbouring miller is a not-dishonest man.*

Some propositions are of a mixed nature; consisting of an affirmative which comprises a negative; or of a negative comprising an affirmative. For instance, *Man alone destroys those of his own species;* that is, both, *Man destroys his own species;* and, *No other creatures destroy those of their own species.* *I did not strike him intentionally;* that is, *I did strike him;* and *I did it not intentionally.*

Τῶν μὲν γὰρ ἐν Θισσαλίᾳ ποταμῶν, Ὀνόχωνες μόνους οὐκ ἀπύχουσι τῇ τερατῇ τὸ μέγεθος, πινόμενος. (Herod. Poly. 196.)

To ascertain the truth or falsehood of a proposition is not the office of Logic, but of that science to which the subject-matter of the proposition belongs: as, *The sun is a mass of ice. The sun is an entire globe of fire. The sun is composed of ignited matter. Pride is wholly sinful. Some kinds of pride are honourable and right.*

3. *Universalis*, est quæ subjicit terminum communem (cum signo universali, *omnis, nullus, &c.* adeoque) pro universis suis significatis distributive sumptum. *Particularis*, quæ terminum communem (cum signo particulari *aliquis, quidam, &c.* adeoque) ex parte tantum significantem. *Singularis*, quæ vocem (vel sponte, vel ex signo saltem) Individuam; ut, *Socrates legit. Hic homo est doctus. Indefinita*, quæ (terminum communem sine signo, et proinde) ancipitem: nam, manente formulâ, vim recipit diversam; ut, *Homo est animal, nempe omnis: Homo est doctus, aliquis scilicet.*

Petitur hæc Divisio a *Quantitate* Propositionis; nempe numero eorum pro quibus subjectum supponit: unde et per has species bene respondetur interroganti, *Quanta sit Propositio?*

The quantity of a proposition depends on the extent in which its subject is applied. If the subject signifies some one object only, the proposition is *singular*. If it is a word signifying many things,

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(that is, a common noun,) but is by some adjunct limited to a portion of them only, the proposition is *particular*. If it signifies many, and is so employed as to denote them all, the proposition is *universal*. If the extent of the subject is to be known only by the sense, and not from the form, the proposition is *indefinite*.

A term, whether subject or predicate, is *distributed* or *universal*, when used in its widest extent, as applied without limitation to every individual signified by it.

### 1. Universal Propositions.

*All the metals are fusible by heat.*

*Every intelligent being is responsible for his conduct.*

*No bad consequences can eventually proceed from compliance with the laws of our country.*

*There does not exist a man who is not ignorant on some useful topic.*

*All men think all men mortal but themselves.*

*No human foresight can check the advance of old age, infirmities, and death.*

### 2. Particular Propositions.

*Some men of deep erudition confine their knowledge to their own breasts.*

*Several useful opportunities have been neglected.*

*Many have raised fortunes at the hazard of their lives.*

*Most arbitrary monarchs are revengeful.*

*Few men in this period of universal knowledge attain to literary eminence.*

*Almost all the poets have been unfortunate.*

*Very many stars have doubtless not yet been discovered by the best instruments.*

*There are scarcely any who are not under the influence of some prejudices.*

In all these examples of particular propositions

the subject is a common term applied to a portion only of the individuals to which the name belongs.

The combination of the universal sign with the negative particle is seldom employed in an universal sense. Thus, in the propositions, *All men have not faith; All is not gold that glitters*; there is a transposition from the natural order, which would be, *Not all men; not every thing which glitters*. Hence they are equivalent to, *Some men have not faith; Some things which glitter are not gold*. A similar form occurs in the sentences, "Ὅρα μὲν εἶναι πάντας, εὐ πάντα παραγομένους ποιοῦσιν. Οὐ πάντα τὰ κατὰ φύσιναι. Neque enim singulare est quicquid unum dici potest; i. e. *Not every thing which can be called One is singular*. The sentence, 'Ἐξ ἡγῶν σώματι οὐ δικαιοσύνηται πᾶσα σὰρξ, is therefore not translated, *Not all flesh shall be justified*, &c. or, *All flesh shall not*, &c. but, *No flesh*, &c. This use indeed of οὐ πᾶς is not agreeable to the usual Greek idiom. It is almost confined to the Septuagint and the quotations from the Old Testament which occur in the New, being the literal translation of the Hebrew expression. That idiom is retained in our older translation of Psalm xxxiv. 22. *All they that put their trust in him shall not be destitute*: where the translation in our Bible is, *None of them that trust in him shall be desolate*. An expression in Aristophanes bears however a great similarity to it; ὅτι πάντα μὴ δίδουσαι. (Vesp. 1085.) So also, *Non omnia possumus omnes*; in which sentence the poet deviates from the usual mode of expression for the sake of emphasis.

### 3. Singular Propositions.

*London is the glory of our country.*

*Noah's ark contained animals of every species.*

*The House of Commons represents the whole commonalty of the realm.*

*The King, Lords, and Commons, form a British Parliament.*

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*His Majesty went to the House of Lords.*

*I am anxious to do good to my neighbours.*

*Two and two makes four.*

*This question has too long engaged our attention.*

*The House has been too long occupied with this question.*

*Petty operations incessantly continued in time surmount the greatest difficulties.*

Each of these propositions contains a subject which signifies one individual thing. In the last example the subject denotes the aggregate of successive operations: so the expression, *two and two*, signifies the amount of *two and two*.

The Syncategorem *all*, when used *distributively*, is a sign of an *universal* proposition; when it is applied *collectively*, the proposition is *singular*. When it is *distributive*, its place may be correctly supplied by *every* or *each*: when *collective*, it admits of the introduction of the word *together*.

*All the Colleges are governed by their respective statutes; i. e. each of the Colleges.*

*All the Colleges constitute an University; i. e. all together collectively taken.*

*All the allied troops fought courageously.*

*All the allied troops formed a noble army.*

*All the primary planets revolve in elliptic orbits about our sun as their centre.*

*All the primary planets are eleven.*

### 4. Indefinite Propositions.

*A man improves more by reading the story of a person eminent for prudence and virtue, than by the finest rules of morality.*

*Tragical representations of human woe make a deep impression on the heart.*

*The virtues confer a superior grace on their possessors.*

*The productions of a great genius, with many lapses*

*and inadvertencies, are infinitely preferable to the more exact and correct works of an inferior author.*

*Errors are marks of human infirmity.*

*Errors creep in to the most prudent undertakings.*

In such propositions it is the office of common sense, guided by an acquaintance with the branch of science to which the proposition relates, to decide upon the extent in which the subject is to be taken. That quality, for instance, which is first predicated of errors, namely, that they are *marks of human infirmity*, belongs to the subject *universally*; *All errors* are such: the other predicate, however, *creep in to the most prudent undertakings*, can only be said of *some errors*.

Every *indefinite* proposition will admit either of an universal or a particular sign. It may be thus distinguished from a *singular* proposition, which will not receive either. The following are therefore *singular*.

*The English are the sovereigns of the ocean.*

*The heavenly bodies form one harmonious system.*

It cannot be correctly said, *Every Englishman is*, or *Some Englishmen are*; *Each of the heavenly bodies*, or *Some heavenly bodies*. The subjects are collective, and therefore *singular*.

A proposition which has an *abstract* word for its subject may often be considered either singular or indefinite: as, *Pride was not made for man*. *Pride* may be taken for a *whole*, and thus considered a *singular* word; or for each *kind* or *sensation* of pride; and so may be understood *distributively*; *No pride* (i. e. no species, or no feeling of pride) *was made for man*. Sometimes a particle occurs in the course of the proposition, which fixes the extent of the subject; thus the sentence, *Emulation has sometimes a good, and sometimes a bad tendency*, may be inaccurately used to signify, *Some kinds of emulation are of good tendency*; and *some kinds of a bad tendency*.

Hanc doctrinam Scholastici hujusmodi carmine sunt complexi ;

*Quæ ? Ca. vel Hyp. Qualis ? Ne. vel Aff.  
Quanta ? Uni. Par. In. Sing.*

### §. 3. *De Terminorum Distributione.*

**PROPOSITIO** Singularis in Syllogismo æque potest Universali. Nam subjectum ejus supponit pro omni suo significato. *Socrates est homo*, Universalis est, quia omnis ille Socrates tantum unus est. Indefinitæ quantitas judicatur ex materiâ propositionis, sive habitudine connexionis extremorum, quæ triplex est ; 1. *Necessaria*, quando extrema essentialiter conveniunt ; 2. *Contingens*, quando accidentaliter tantum ; 3. *Impossibilis*, quando essentialiter differunt. Unde Propositio Indefinita pro Universali habetur, in materiâ impossibili et necessaria ; pro Particulari vero, in contingenti.

The fourfold division of Propositions into universal, particular, singular, and indefinite, though in itself more accurate, may be conveniently simplified. So far as relates to their use in argument, *singular* propositions have the same characteristic as *universals* ; namely, the subject is unlimited ; it extends to every individual thing which the word signifies. Thus, in *Senatus decrevit* ; *One night elapsed* ; *The king is returned* ; *Erupt Catalina* ; the subjects include every thing which the words them-

selves can include; and therefore they may (by a catachresis) be said to be *distributed*.

*Indefinite* propositions are also equivalent either to universals or to particulars, according to their sense, or to the mutual relation and bearing of the subject and predicate, which is termed the *matter* of the proposition; and is, as above described, either *necessary*, *impossible*, or *contingent*. Unless therefore the subject to which the propositions relate be previously understood, they must be in this respect ambiguous. When the predicate is *necessarily* true of the subject, the proposition is in signification *universal*, and wants only the *sign* to render it formally so. Of this nature are the following:

*Human plans, however well laid, are liable to disappointment; that is, All human plans.*

*Exaggerated commendations defeat their own purpose by exciting suspicion; that is, All exaggerated commendations.*

If the predicate be wholly incompatible with the subject, and the extremes thus *essentially* differ, the proposition will also be equivalent to an universal: thus,

*The most prudent of human plans are not sufficient to ensure success; that is, No human plans, not even the most prudent, are sufficient, &c.*

*Old soldiers do not willingly venture beyond the verge of experience; that is, No old soldiers venture, &c.*

*Brutes neither eat nor drink more than nature requires; that is, No brutes, &c.*

But if the proposition, whether affirmative or negative, be such that the predicate may be asserted of some things comprehended in the subject, and denied of others; that is, if its extremes only accidentally agree or differ, it is in sense a *particular* proposition. Thus,

*Victories have been gained under every circumstance of disadvantage ; that is, Some victories.*

*While brutes neither eat nor drink more than nature requires, men degrade themselves by excess even below the level of the brutes ; that is, Some men degrade, &c.*

Quare, Quantitas Propositionis, quatenus ad Syllogismum facit, est duplex: *Universalis* et *Particularis*. Et nota, quod *Universalis* affirmans symbolum habet A; negans E: *Particularis* affirmans symbolum I; negans O.

*Asserit A ; negat E : Universaliter ambæ.*

*Asserit I ; negat O : sed Particulariter ambo.*

In *Universali*, signum affirmans distribuit tantum Subjectum: Negans, etiam Prædicatum: Nam ut verum sit *Omne a est b*, sufficit aliquod *b* convenire omni *a*: sed falsum est *nullum a esse b*, si vel aliquod *b* conveniat alicui *a*. Eodem argumento, ut sit verum *Aliquod a est b*, sufficit si vel aliquod *b* conveniat alicui *a*: sed falsum est quod *aliquod a non est b*, nisi illud *a* differat a quovis *b*. Et proinde

In particulari, nullus terminus distribuitur, præter negantis prædicatum, quod semper distribuitur.

Universal affirmative propositions distribute the subject only :

Universal negatives distribute both the subject and predicate :

Particular affirmatives distribute neither the subject nor the predicate :

Particular negatives distribute the predicate alone.

The following scale therefore represents the extent of the extremes in each kind of propositions.

A.	Distrib.	⌘
E.	Distrib.	Distrib.
I.	⌘	⌘
O.	⌘	Distrib.

A.

*ALL VIRTUES are habits.*

*Vain are ALL SUDDEN SALLIES OF DELIGHT.*

*OUR AFFECTIONS are liable to seduction.*

*THE PATIENT POOR deserve esteem.*

*Scribendi recte SAPERE fons est et principium.*

The *subject* is taken universally or distributively, (as denoted by the change of character in the examples,) and thus extends to every individual comprised under it. This is either formally expressed by the universal sign or syncategorem, or to be inferred from the matter of the proposition. But the *predicates* denote, not necessarily *all*, but *some*, of the individuals comprised under the common term. For instance; *All virtues are SOME habits*; there being other habits which are not virtues: *The patient poor are SOME of those who deserve esteem*, while others also may have the same predicated of them. *All sudden sallies of delight are SOME of*, but are far from *all*, the things to which belongs the character *vain*. These predicates therefore are not distributed.

## E.

*NO VICIOUS INDULGENCES are PROFITABLE.*

*AFFLICTIONS cannot BE PLEASING TO HUMAN NATURE.*

*The MISTAKE has not BEEN RECTIFIED.*

*NEMO MORTALIUM OMNIBUS HORIS SAPIT.*

That the *subjects* are distributed is evident from the sign or the matter; otherwise they could not (by the definition) be universal. But if any one individual comprised under the *predicate* be not excluded from agreement with the subject; if, for instance, *any thing profitable* be a *vicious indulgence*; or if *any thing which can be pleasing to human nature* comes under the head of *afflictions*; the proposition is untrue. Each individual therefore signified by the predicate is excluded, that is, the predicate is *distributed*.

## I.

*Some laws are obsolete.*

*Books are profitable companions.*

*There have been wars unjustly waged.*

As the distributed subject is the essential characteristic (or logical difference) of universal propositions; so the *undistributed subject* is the characteristic of *particular* propositions. The *predicate* also need not be applied to more than a *part* only of the things signified by the term. For instance, the *some laws* spoken of in the first example are only a small portion of the whole mass of things which are *obsolete*. So also, *some books* are only *some*, they are far from *all profitable companions*. Therefore the predicate as well as the subject is *undistributed*.

## O.

*Some offenders are not DULY PUNISHED.*

*Many authors are not MEN OF ORIGINAL GENIUS.*

*Some men are NEVER SATISFIED.*

*There are creatures which are not RESPONSIBLE.*

Such propositions are not true unless there be some definite number of individuals comprised under the *subject*, from which every individual which comes under the denomination of the *predicate* is entirely excluded. Thus there is a *class of offenders*, of not one of whom it can be said that they are *duly punished*. There is a *class of authors* from which every individual *man of original genius* is wholly excluded. Consequently the predicate is *distributed*.

Quamquam igitur fieri potest, ut prædicatum distribuatur in affirmante, tamen non est necessarium; sed *per accidens* fit, et *virtute significati*, non *virtute signi*. In statuendis autem propositionum legibus, spectandum est id tantum, quod structura postulat, non quidquid sensus admittit: cum illud *essentiale*, et *perpetuum* sit; hoc *mutabile*, et *incertum*.

The occasional and accidental distribution of the predicate in affirmative propositions must not be allowed to affect an argument. To draw an inference grounded on that circumstance is injudicious, if not inaccurate; because it supposes something to be known which is not *made known* by the propositions laid down, but must be derived *ab extra*. There is not any thing in the form or expression of the sentences, 'Εἰς τὴν ἀρετὴν ἵδμεν πορεύμεν, Μαρτύριον εἰς τὴν ἀρετὴν, which intimates that the predicate is distributed in the one rather than in the other. To infer from the latter that *because all virtue is to be chosen for its own sake, and every virtue*

consists in a medium, therefore every medium is worthy to be chosen for its own sake, would be manifestly erroneous. To infer from the former, by a similar process, that the due medium as to moral conduct is worthy to be chosen for its own sake, would be equally illogical and erroneous as to form, and could carry conviction to those alone who, from previous acquaintance with the subject, know that the predicate *ἡθικὰ μερόν* is accidentally distributed; since the proposition itself does not render that distribution necessary. The Greek language indeed affords a facility for expressing the distribution of the predicate in universal affirmatives, of which our language is destitute; namely, by prefixing the article to each extreme, by which means the proposition is rendered reciprocal. Thus, *Ἐστὶν ἡ ἀρετὴ ἡ ἡθικὰ μερόν*, signifies at once, *Virtue is that medium which relates to moral conduct*; and, *Whatever is a medium relating to moral conduct is virtue*; in other words, it denotes the predicate to be distributed.

Such a distribution of the predicate takes place whenever it is a definition of the subject; or its logical difference; or a species of it; or a property of the first, third, or fourth kind. Other cases might likewise be enumerated. Thus,

*Rhetoric is the art of speaking persuasively.*

*All men are rational.*

*All propositions must be either true or false.*

*Some rectilineal figures are triangles.*

*Some men are skilful astronomers.*

*George the Fourth is King of England.*

*The wicked shall fall by his own wickedness.*

*The better part of valour is discretion.*

Hæc igitur regula generalis esto, quod in propositione A, subjectum tantum distribuitur; in O, tantum prædicatum; in I, neutrum; in E, utrumque.

The substance therefore of the doctrine of distribution is this:

*Universal Propositions* necessarily require a *distributed* or *universal subject*: *Particulars* require an *undistributed* or *particular subject*.

*Negative Propositions* require a *distributed predicate*, but *Affirmatives* may have the *predicate undistributed*.

#### §. 4. *De Propositionum Oppositione.*

**PROPOSITIONIBUS** accidunt *Oppositio* et *Conversio*. *Opponi* dicuntur duæ, quæ, cum subjecta habeant et prædicata omnino eadem, Quantitate tamen, vel Qualitate vocis, vel utrâque pugnant.

Oppositionis doctrina tota colligitur et demonstratur ex ap-

posito Schemate, in quo, A. E. I. O. sunt quatuor Propositiones quantitate suâ et qualitate signatæ: quæ sunt *v. f.* (hoc est, *veræ* vel *falsæ*) pro materiâ *n. i. c.* (hoc est, *necessariâ*, *impossibili*, *contingente*);

quod ex ipsâ materiæ definitione satis patet. De *necessariâ*; quia Propositionis extrema in eâ

n. v.		f. n.
i. f. A.	Contrariæ	E. v. i.
c. f.		f. c.
Subalternæ	Contradictoriæ	Subalternæ
n. v.		f. n.
i. f. I.	Subcontrariæ	O. v. i.
c. v.		v. c.

essentialiter conveniunt: de *impossibili*; quia in eâ essentialiter differunt: de *contingenti*; quia secus non esset materia contingens. Inspecto igitur hoc Schemate facile est

1. Oppositionis *species* numerare; quæ sunt vulgo quatuor; *Contradictoria, Contraria, Subcontraria, Subalterna*.

2. Singularum definitiones conficere. V. g. *Oppositio Contradictoria, est inter (A. O. vel E. I. hoc est) duas Categoricalas quantitate pariter et qualitate pugnantes. Contraria, inter (A. E. h. e.) duas universales qualitate pugnantes &c.*

3. Oppositarum Canones quatuor eruere et demonstrare hunc in modum.

1. Contradictoriæ A. O. vel E. I. sunt in nullâ materiâ simul veræ; in nullâ simul falsæ; sed in quâcunque una vera, falsa altera.

Sed notandum est, ad Contradictionem requiri quatuor: nempe loqui de eodem 1. *eodem modo*. 2. *secundum idem*. 3. *ad idem*. 4. *in eodem tempore*; quarum conditionum si defuerit aliqua, possunt *Est* et *Non est* inter se bene convenire. E. g. 1. Cadaver hominis *est* et *non est* homo: *Est* enim homo mortuus; *Non est* homo vivus. 2. Zoilus *est* et *non est* niger: *Est* enim crine ruber, niger ore. 3. Socrates *est* et *non est* comatus: nempe *est*, ad Scipionem, *non est* ad Xenophontem comparatus. 4. Ne-

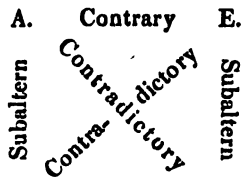
stor *est* et *non est* senex : *Est* enim, si de tertiâ ejus ætate, *non est*, si de primâ loqueris.

2. Contrariæ A. E. in nullâ simul veræ; in Contingenti, simul falsæ; in ceteris, una vera, falsa altera; nempe in Necessariâ, vera A, falsa E; in impossibili, vera E, falsa A.

3. Subcontrariæ I. O. in Contingenti, simul veræ; in nullâ simul falsæ; in Necessariâ, vera I, falsa O; in impossibili, vera O, falsa I.

4. Subalternæ A. I. vel E. O. et simul veræ, et simul falsæ, et una vera, falsa altera esse possunt. Nam in Necessariâ, simul veræ sunt A. I; in Impossibili, simul veræ E. O; in eâdem, simul falsæ, A. I. et in Necessariâ, simul falsæ E. O; in Contingenti, (propter A. E. falsas, I. O. veras) A. I. vel E. O. sunt una vera, falsa altera.

N. v. *All fowls are birds.* N. f. *No fowls are birds.*  
I. f. *All fowls are dogs.* I. v. *No fowls are dogs.*  
C. f. *All fowls are hens.* C. v. *No fowls are hens.*



N. v. *Some fowls are birds.* N. f. *Some fowls are not birds.*  
I. f. *Some fowls are dogs.* I. v. *Some fowls are not dogs.*  
C. v. *Some fowls are hens.* C. v. *Some fowls are not hens.*

1. *Contradictory Opposition* is that which subsists between two pure categorical propositions, differing both in *quantity* and *quality*; as, *All men are responsible*; *Some men are not responsible*. *No soldiers are cowards*; *Some soldiers are cowards*.

2. *Contrary Opposition* is between two universal propositions, differing in *quality*; as, *All trees possess vegetable life*; *No trees possess vegetable life*.

3. *Subcontrary Opposition* subsists between two particular propositions, differing in *quality*; as, *Some minds are too much beclouded with prejudice to admit of the light of genuine science*. *Some minds are not too much beclouded with prejudice to admit of that light*.

4. *Subaltern Opposition*, between two propositions differing in *quantity* only; as, *All human laws are imperfect*; *Some human laws are imperfect*. *No men have an affectionate disposition*; *Some men have not an affectionate disposition*.

#### A.

*The heavenly bodies will partake in the universal dissolution of nature.*

*They are all formed by human ingenuity.*

*They are all discernible by the naked eye.*

#### E.

*The heavenly bodies will not partake of the universal dissolution.*

*None of them are formed by human ingenuity.*

*They are not discernible by the naked eye.*

#### I.

*Some of the heavenly bodies will experience that dissolution.*

*Some of them are formed by human ingenuity.*

*Some are discernible by the naked eye.*

O.

*Some of the heavenly bodies will not participate in the dissolution of nature.*

*Some heavenly bodies are not formed by human ingenuity.*

*There are some of them which are not discernible by the naked eye.*

OPPOSITION,	Contradictory,	Between A. & O.	$\left\{ \begin{array}{ll} \text{A.} & \text{O.} \\ \text{N. true} & \text{false.} \\ \text{I. false} & \text{true.} \\ \text{C. false} & \text{true.} \end{array} \right.$
		Between E. & I.	$\left\{ \begin{array}{ll} \text{E.} & \text{I.} \\ \text{N. false} & \text{true.} \\ \text{I. true} & \text{false.} \\ \text{C. false} & \text{true.} \end{array} \right.$
	Contrary,	Between A. & E.	$\left\{ \begin{array}{ll} \text{A.} & \text{E.} \\ \text{N. true} & \text{false.} \\ \text{I. false} & \text{true.} \\ \text{C. false} & \text{false.} \end{array} \right.$
		Subcontrary, Between I. & O.	$\left\{ \begin{array}{ll} \text{I.} & \text{O.} \\ \text{N. true} & \text{false.} \\ \text{I. false} & \text{true.} \\ \text{C. true} & \text{true.} \end{array} \right.$
	Subaltern,	Between A. & I.	$\left\{ \begin{array}{ll} \text{A.} & \text{I.} \\ \text{N. true} & \text{true.} \\ \text{I. false} & \text{false.} \\ \text{C. false} & \text{true.} \end{array} \right.$
		Between E. & O.	$\left\{ \begin{array}{ll} \text{E.} & \text{O.} \\ \text{N. false} & \text{false.} \\ \text{I. true} & \text{true.} \\ \text{C. false} & \text{true.} \end{array} \right.$

The opposition between Contradictory propositions is perfect; since they differ in every respect. Consequently they cannot be both true, or both false together.

The four requisites to a complete contradiction may be comprised in one rule, which is equally applicable to all the species of opposition; namely, the terms must be employed *in the same sense* in both the opposing propositions. This rule must include the necessity of their being asserted of the same thing, in the same manner, in relation to the same object, in comparison with the same, and at the same time.

Contrary propositions cannot be both *true* together; but may be either both *false*, or the one false and the other true.

Singular propositions cannot, in strictness of speech, be *contradicted*; for their quantity cannot be changed. But the *contrary* to a singular proposition affords as perfect an opposition as the contradiction between universals and particulars. For, the matter of a singular proposition cannot be contingent; and in necessary and impossible matter contraries cannot be either both true or both false together.

Subcontrary propositions cannot be both *false*; nor can they be both *true* except in *contingent* matter. The very definition of contingent matter requires that it should be such as to allow the predicate to be at the same time asserted of some things comprised under the subject, and denied of others.

Subaltern propositions may be both *true*, or both *false*; or the universal *false*, and the particular *true*. The universal proposition is called *subalternans*; the particular, *subalternate*. The relation between them is scarcely to be called *opposition* in the common acceptance of the word, though it comes

within the range of the definition of that term as here used.

If an universal proposition is true, the correspondent particular is also true.

If the particular is false, the corresponding universal must be false likewise.

If an universal is false, or a particular true, its subalternate or subalternans may be either true or false.

*Example in Necessary Matter.*

A. All human institutions are imperfect.	} v.	{ Contrary to E. Subalt. to I. Contrad. to O.
E. No human institutions are imperfect.	} f.	{ Contrary to A. Contrad. to I. Subalt. to O.
I. Some human institutions are imperfect.	} v.	{ Subalt. to A. Contrad. to E. Subcont. to O.
O. Some human institutions are not imperfect.	} f.	{ Contrad. to A. Subalt. to E. Subcont. to O.

*Impossible Matter.*

E. None of the planets are stationary.	} v.	{ Subalt. to O. Contrary to A. Contrad. to I.
O. Some of the planets are not stationary.	} v.	{ Subalt. to E. Contrad. to A. Subcont. to I.
A. All the planets are sta- tionary.	} f.	{ Contrary to E. Contrad. to O. Subalt. to I.
I. Some planets are sta- tionary.	} f.	{ Contrad. to E. Subcont. to O. Subalt. to A.

*Contingent Matter.*

I. Some wars are just . . . .	} v.	{	Subcont. to O.
			Subalt. to A.
			Contrad. to E.
O. Some wars are not just.	} v.	{	Subcont. to I.
			Contrad. to O.
			Subalt. to E.
A. All wars are just . . . . .	} f.	{	Subalt. to I.
			Contrad. to O.
			Contrary to E.
E. No wars are just . . . . .	} f.	{	Contrad. to I.
			Subalt. to O.
			Contrary to A.

Possunt etiam aliter hi Canones Oppositarum, cum pluribus aliis, tum hoc quoque modo demonstrari.

1. Contradictoriæ A. O. vel E. I. nec *simul veræ* nec *simul falsæ* esse possunt. Quod enim una negat, idem altera de eodem, secundum idem, affirmat: Id vero fieri nec natura patitur, nec sensus ipse communis. Quare,

α. Si universalis vera sit, particularis, quæ sub eâ continetur, vera est. Et

β. Si particularis falsa sit, universalis, quæ eam continet, falsa est: Quoniam enim subiectum in universali distribuitur, fit, ut in eâ, et in particulari, idem, de eodem, secundum idem, dicatur: vere igitur et falso simul dici, (hoc est, affirmari simul et negari) nequit.

2. Contrariæ A. E. non possunt esse *simul veræ*: sed in materiâ contingenti sunt *simul*

*falsæ*. Nam 1°. Exponatur universalis vera; Ergo particularis vera per 1.  $\alpha$ ; Ergo quæ particulari contradicit falsa per 1. Sed hæc est Expositæ contraria.

2°. Exponatur universalis de materiâ contingenti; Ergo et hæc falsa est, et particularis vera, vi materiæ: Ergo quæ particulari contradicit falsa per 1. Sed hæc est Expositæ universali contraria.

3. Subcontrariæ I. O. *simul falsæ* esse non possunt: sed *simul veræ*, vel *una vera, falsæ altera*, esse possunt. Sunt enim duæ duarum contrariarum contradictoriæ, ut in Schemate patet, cum contrariis decussatim comparandæ. Quare, (per. 1. et 2.) subcontrariæ sunt in nullâ materiâ *simul falsæ*; quia contrariæ in nullâ *simul veræ*: subcontrariæ in contingenti *simul veræ*; quia contrariæ in eadem *simul falsæ*. In impossibili vero, et necessariâ, eadem utrique lex est, ut sit una vera, falsa altera.

4. Subalternæ A. I. vel E. O. et *simul veræ*, et *simul falsæ*, et *una vera, falsa altera*, esse possunt. Nam 1°. Si subalternans (nempe universalis) vera sit, subalternata (sive particularis) vera est (per 1.  $\alpha$ .) 2°. Si subalternata falsa, Ergo subalternans falsa (per 1.  $\beta$ .) 3°. Si subalternans falsa, Ergo quæ illi contradicit vera (per 1.) Ergo hujus subcontrariâ, quæ

est Expositæ subalternata, vera vel falsa esse potest (per 3.) 4°. Si subalternata vera, Ergo quæ illi contradicit falsa (per 1.) Ergo hujus contraria, quæ est expositæ subalternans, vera vel falsa esse potest (per 2.)

This ingenious imitation of mathematical proof appears needless. Its conclusions are self-evident; the argument therefore cannot afford any additional satisfaction to the mind.

A single axiom is laid down, viz. that *The same thing cannot be affirmed and denied of the same thing at the same time*; from which the whole doctrine of contradiction is at once inferred, namely, that the contradictory propositions cannot be both true, or both false together.

But the foundation is not sufficiently extensive for the superstructure.

The principle laid down will, indeed, authorize the conclusion that neither contradictories nor contraries can be together true; but it does not prove that contradictories cannot be false together.

The following axiom might supply its place; *It is impossible that a proposition should be at the same time and in the same sense true and not true.*

If therefore it be true that *All vicious indulgences lay the foundation of future remorse*, the same assertion cannot be untrue; it cannot be said, *Not all vicious indulgences lay the foundation of future remorse*, that is, *Some vicious indulgences do not lay the foundation*, &c. If it be true, *No virtues are ultimately injurious to men*, the assertion that *Not-no virtues, (non-nullæ virtutes,)* that is, *some virtues, are ultimately injurious*, must be false. On the other hand; if it be false that *Omnis feret omnia tellus*, it cannot be false that *Non omnis feret omnia tellus*. *Some countries or soils will not produce every thing.* If it is false that *Nemo mortalium est philosophus*, it

cannot be false that *Non-nemo mortaliū est philosophus, Some men are philosophers*. Thus contradictories cannot be either true or false together.

From the same axiom it is justly inferred that *if an universal be true, the corresponding particular will also be true*. For the universal includes the particular. If *all men are mortal*, it follows that any *some men*, that is, any particular class or number of men, are mortal. To deny therefore that *some men are mortal*, would be to assert the former proposition to be at the same time true and not true.

The same would be the absurdity, if, when a particular is admitted to be false, the universal is not admitted to be false likewise. If it is false that *some planets are motionless*, it must continue false when involved in the universal, *all planets are motionless*. Consequently, that universal must be also false.

By means of these primary inferences the other rules of opposition are deduced by a process which being at once obvious and unprofitable, needs no further illustration.

#### §. 5. *De Conversione Propositionum.*

**CONVERTI** dicitur Propositio, cujus extrema transponuntur. Variis id modis fieri potest, sed præsertim duobus: 1. *Simpliciter*, quando tam quantitas, quam utraque qualitas servatur. 2. *Per accidens*, quando servatâ qualitate, quantitas mutatur.

*fEcI Simpliciter convertitur, EvA per Acci:*  
et conversio utrobique illativa est.

Nam 1. sit vera E, puta *Nullum A est B*:  
Ergo (cum uterque terminus distribuatur)

Thus, *No true philosophers omit the enforcement of moral duty, No men are perfect*, may be simply con-

verted. For, both extremes being distributed, the propositions denote that *every true philosopher* differs from *every person who omits the enforcement of moral duty*, and that *every man* differs from *every perfect being*. Consequently *all who omit the enforcement of duty* differ from *all true philosophers*; and *every perfect being* from *every man*. That is, *None who omit the enforcement of moral duty are true philosophers. No perfect beings are men.*

Again, the particular affirmative propositions, *Some proud men occasionally stoop to acts of the basest servility, Some poor persons are liberal*, may also be simply converted; for, the ellipsis of the sign being supplied, the sentences are, *Some proud men are some men who occasionally stoop, &c. Some poor persons are some liberal persons.* In the transposition therefore, both extremes retain their original quantity, and the truth of the proposition is also preserved: *Some who occasionally stoop to acts of the basest servility are proud men: Some liberal persons are poor.*

The truth of the simple converse of I is proved in the text by a different process. If a particular affirmative proposition is true, (as, *Some poor men are liberal*,) its contradictory is false; (namely, E, *No poor men are liberal*;) but the simple converse of this is also false, (namely E, *No liberal men are poor*;) therefore the contradictory to this is true, (I, *Some liberal men are poor*,) which is the simple converse of the original proposition.

*Universal negative* propositions are convertible not only *simply*, but also *accidentally*. For if the simple converse is true, the particular which is sub-alternate to that simple converse is also true; which, (by the definition,) is the accidental converse of the primary proposition. Thus, since it is true that *No larks are web-footed birds*, it follows by simple conversion that *No web-footed birds are larks*; whence it is necessarily true by the laws of opposition, that

*Some web-footed birds are not larks*; which is the converse *per accidens* of the original proposition.

*Universal affirmatives* may be converted *per accidens*. For when A is true, its subaltern is also true; which subaltern, being I, is simply convertible; and its simple converse will be the accidental converse of A. Thus it is true that *Rich men are universally exposed to many snares*; it is therefore true that *Some rich men are exposed to many snares*, of which the converse is also true, *Some who are exposed to many snares are rich men*. But this is the accidental converse of the original proposition.

A may be simply converted when its predicate is distributed; as, Ἡ ὑδαίμωνία ἐστὶ τὸ ἀρεστὸν. Ἡ ἀρετὴ ἐστὶ ἡ ἀδικία παρόντης. Ὁ μεγαλόψυχος ἐστὶ ὁ μέγας ἀνδρῶν ἀξίω, ἀξίος αὐτῶν. *Et quod decet, honestum est, et quod honestum est, decet*. In these and similar sentences the subject and the predicate are co-extensive, and therefore reciprocal. Thus also if it is true that *Cicero was the discoverer of Cataline's conspiracy*, it is equally true that *the discoverer of Cataline's conspiracy was Cicero*.

It must be observed, that the *inference* in the case of accidental conversion is not so complete as in simple conversion. The simple converse must retain the accidental quality of its leading proposition, whether true or false: but the accidental converse does not necessarily follow the leading proposition, unless when the latter is true. If therefore a proposition be true, both its simple and its accidental converse must be true: if a proposition be false, its simple converse must be false; but the accidental converse may be either true or false. For conversion *per accidens* depends on the laws of subaltern opposition; in which the particular does not necessarily retain the accidental quality of the universal, except when the universal is true.

Hence if it is false that *No Hottentots possess reason*,

and *Some mortals are infallible*, the falsehood of the converse is inferrible; namely, *None who possess reason are Hottentots; Some infallible beings are mortals*. But it cannot be inferred from the falsehood of the propositions, *No Hottentots possess reason, All who are promoting the good of their fellow creatures are wealthy men*, that the accidental converse of each is false; namely, *Some who possess reason are not Hottentots; Some wealthy men are promoting the good of their fellow creatures*.

### *Examples of Conversion.*

*Every act of fortitude is an act of virtue :  
Some acts of virtue are acts of fortitude.*

*All the various ranks in society tend to the common good :*

*Some things which tend to the common good are the various ranks in society.*

*Nothing morally wrong is politically right.  
Nothing politically right is morally wrong.*

*Real piety does not promote melancholy.  
That which promotes melancholy is not real piety.*

*There are mortal, responsible men, creatures who must give an account of their deeds to the sovereign Judge, impious enough to dare his vengeance.*

*Some of those beings who are impious enough to dare the vengeance of the sovereign Judge, are mortal, responsible men, creatures who must give to him an account of all their deeds.*

*Admitting that the meeting was an illegal meeting, it does not necessarily result that it was a riotous one; for although a riotous meeting is therefore an illegal one, yet it is not thence to be inferred, as a matter of course, that if illegal, it must be riotous.*

*Aliud est jus civile, aliud jus gentium. Quod civile*

*non idem continuo gentium, quod autem gentium, idem civile esse debet.*

O is not convertible either simply or per accidens. For since its subject is not distributed, the converse would require the predicate to be undistributed; which is impossible in negative propositions.

There is another species of conversion which is useful, if not for the demonstration of syllogisms, (which is perhaps one of the least important uses of the two former kinds,) yet for the confirmation and enforcement of a proposition. This is called conversion by *contraposition*, and is applicable to universal affirmatives and particular negatives. It consists in the transposition of the extremes, and the combining with both of them the *particula infinitans*, *not*. The proposition, *Every duty is accompanied with a certain propriety and decorum*, thus converted becomes, *Whatever is not accompanied with a certain propriety and decorum is not a duty*. The compound proposition, *Whosoever is of God doeth righteousness and loveth his brother*, becomes, *Whosoever doeth not righteousness is not of God, neither he that loveth not his brother*.

*Some men are not students*, converted by contraposition becomes, *Some non-students are not non-men*; which, divested of the harshness of its form, is, *Some who are not students are men*.

The application of this mode of conversion to particular negatives produces the same result as if the negative particle were disjoined from the copula and made a part of the predicate, and the proposition were then converted simply, as an affirmative. Thus, *Some men are non-students*, therefore, *Some non-students are men*, i. e. *Some who are not students are men*. *Some highly important duties cannot be fulfilled without the exercise of self-denial*: *Some duties which cannot be fulfilled without the exercise of self-denial are notwithstanding highly important*.

## CAP. III.

## DE SYLLOGISMO CATEGORICO PURO.

§. 1. *Quid sit Syllogismus.*

**TERTIA** pars Logicæ agit de *Argumento* sive *Syllogismo*, quod est signum tertię operationis intellectûs: nempe *Discursus*, vel *Ratiocinium* Propositionibus expressum.

Quare, cum *Discursus* sit progressus mentis ab uno judicio ad aliud, perspicuum est in eo requiri, 1. Aliquid unde *discursus* ordiatur; 2. Aliud quo perveniat; 3. Ea sic ab invicem pendere, ut unum ex alio, et aliûs vi innotescat; secus enim, unum post aliud cognoscere, est tantum sæpe judicare.

The definition of *Reasoning* is necessarily figurative; since it is naturally impossible to assign an explanation of it any notions which are in themselves more simple. As in natural motion, there must be a place from which the moving body sets out, a place at which it arrives, and a connexion between the two by the presence of the body successively in each intermediate point: so in the act of reasoning, there must be certain principles from which it commences; a conclusion at which it arrives; and such a relation between the principles and the conclusion, that the mind possessed of the former shall be irresistibly carried on to the latter.

Thus when the mind is thoroughly convinced that it is an act of idolatry to worship any created thing; and that the sun is a created thing; it cannot refuse to acquiesce in the inference that it is idolatry to worship the sun.

But when it is argued, that *Because at the creation the sun was made to rule the day, and the moon and stars to rule the night; therefore the pope is superior to kings and emperors*; the mind cannot recognize any mutual relation: the sentence expresses no more than two or three unconnected judgments.

That from which an argument begins, and from which, as a thing previously known, something else is to become known, must be derived either from intuition, or consciousness, or from the external senses, or from induction, or from previous syllogistic argument.

Whatever conclusions have been previously demonstrated may be employed as the foundations of new arguments.

Jam, ex quo aliud cognoscendum est, ipsum certe præcognosci debet; et proinde quasi sine discursu notum, *antecedere, poni, præmitti*; et ex eo reliquum *concludi, colligi, inferri et sequi* dicitur.

Arguments must commence from principles which are better known to ourselves than the thing to be proved; although they may be less simple in their own nature. Hence an astronomer, having previously discovered that *on such a day the earth will directly intervene between the sun and the moon*, infers that *a lunar eclipse will then occur*; while another person, having first been assured on competent authority of the fact of the eclipse, infers from that fact the relative position of the heavenly bodies.

.Est autem duplex *consequentia* :

1. *Materialis* ; quando ex Antecedente Consequens infertur, solâ vi Terminorum, quæ est *Argumenti materia* : ut, *Homo est animal. Ergo est vivens.*

2. *Formalis* ; quando infertur propter ipsum colligendi modum, quæ est *argumenti forma* ; ut, *B est A ; C est B : Ergo C est A.* Mutatis terminis et servatâ eorum dispositione, *Materialis* plerumque fallit, *Formalis* semper obtinet : et proinde hæc solum in Logicâ spectatur, illa, tanquam mutabilis et lubrica, negligitur.

A *consequent* (*consequens*) is that which follows or is deduced from some antecedent. The word *consequence* (*consequentia*) is also used most commonly in the same sense. But it is more consistent with the analogy of language to confine the latter to the dependence of the consequent on its antecedent ; or to the mode in which that dependence is shewn. In the latter of these two senses it is here employed.

The following are instances of material consequence.

*A good education is highly valuable ; for it softens the manners and ameliorates the dispositions of the heart.*

*The earth has been repeatedly circumnavigated ; we need therefore no other evidence to authorize us to explode the ancient doctrine that we live on one vast interminable plane.*

*It is gross idolatry to pay religious adoration to a created being ; now that the sun is a creature none*

*can deny ; consequently the worshippers of the sun are idolaters.*

These arguments, reduced to *form*, may be thus expressed :

*Every thing which softens the manners and ameliorates the dispositions of the heart is highly valuable : But, a good education softens the manners and ameliorates the dispositions of the heart : Therefore, a good education is highly valuable.*

*No vast interminable plane is circumnavigable ; The earth is circumnavigable : Therefore the earth is not a vast interminable plane.*

*Or thus : Nothing which has been circumnavigated is an interminable plane : The earth has been circumnavigated : Therefore the earth is not an interminable plane.*

*To worship a created thing is idolatry : To worship the sun is to worship a created thing : Therefore to worship the sun is idolatry.*

Every material argument is reducible to a *formal* syllogism. The latter will usually appear harsh, because it supplies that which is more naturally left to the judgment of the hearer. It is, however, an accurate representation of that which must pass in the mind before any syllogistic conclusion can obtain its acquiescence. The harshness and apparent tautology of the formal syllogism has been one occasion of prejudice against the syllogistic system. Such an objection is however as unreasonable as it would be to urge that grammar is futile, from the harshness which the writings of any author would present if all the grammatical ellipses were supplied. The man who should publish the *Spectator* with every grammatical ellipsis filled up, and he who should reduce Euclid's *Elements* to formal syllogisms, would alike display their own absurdity, but would not prove any futility, either in the science of grammar or in syllogistic argument.

The office of syllogism is not the discovery, but

the application of truth ; it consists in the practical use of knowledge, rather than the primary acquisition of it. It employs the general principles which are possessed by intuition or consciousness, acquired by moral or scientific induction, or received from revelation ; and by applying them to particular and subordinate cases, brings us to those intermediate principles which are necessary for the practical improvement of all moral and scientific knowledge.

It is not the province of Logic to ascertain the truth of the propositions in an argument, which must be the appropriate office of other sciences ; but, supposing the principles true, to ascertain the inferences deducible from them. It effects this chiefly by guarding the mind against the fallacies which may arise from the language in which an argument is expressed. To this object the following rules are directed : and in the illustrations attached to them, the premises must be hypothetically considered as true.

*Hisce intellectis, opinor satis constare quo sensu definiatur Syllogismus ; Oratio, in quâ positis quibusdam atque concessis, necesse est aliud evenire præter et propter ea quæ posita sunt atque concessa.*

*Syllogism* is a species of sentence ; and is distinguished from the collateral species by the logical difference, which is described in the remainder of the definition. The antecedent contains principles which not only the person arguing lays down as true, but to which he supposes that those to whom the argument is addressed will yield assent. Those principles, if not assented to, require either syllogistic or other proof, according to their nature.

The conclusion in a syllogism, while it is so closely related to the principles premised, as to be necessarily implied in them, is notwithstanding a new judgment totally distinct from them. To assert that *because no bad men are profitable companions, therefore no profitable companions are bad men*, is not to syllogize; for the conclusion is not distinct from, but wholly involved in, the single proposition whence it is deduced. The inference that *the company of bad men should be avoided, because it is pernicious*, is syllogistically drawn; for the conclusion, *the company of bad men should be avoided*, is both *præter* and *propter*, distinct from, and rendered necessary by, the previously known premises, *Whatever is pernicious should be avoided*; and, *The company of bad men is pernicious*.

### §. 2. *Canones Syllogistici.*

**MULTÆ** sunt ejus species; sed una tantum præsentis instituti; nempe *Categoricus simplex*, i. e. qui constat tribus propositionibus de inesse. E quibus duæ priores sunt Antecedens, tertia Consequens; quæ extra syllogismum spectata (scil. quamdiu hæret in incerto) *Problema*, et *Quæstio* dicitur; in syllogismo autem (nempe post fidem factam) *Conclusio*.

Question or Problem.	}	<i>Is emulation a principle worthy of encouragement?</i>
Ante- cedent.	}	<i>Whatever promotes diligence is a principle worthy of encouragement;</i>
		<i>Emulation promotes diligence: Therefore,</i>
Conse- quent.	}	<i>Emulation is a principle worthy of encouragement.</i>

Antecedent. { *Whatever produces envy is not a principle worthy of encouragement;*  
*Emulation produces envy: Therefore,*

Consequent. { *Emulation is not a principle worthy of encouragement.*

Quæstionis duo sunt extrema, Subjectum et Prædicatum; quorum de Convenientiâ vel Dissidio inquiritur, ope termini alicujus tertii; idque propter Canones sequentes, in quibus vis omnis Syllogistica fundatur.

1. Quæ conveniunt in uno aliquo eodemque tertio, ea conveniunt inter se.

Let the question or problem be, *Humility is worthy of constant cultivation.* The predicate (*worthy of constant cultivation*) agrees with a third thing, (sc. *An ornament of the Christian character*); but the subject (*humility*) agrees with the same third; therefore the extremes agree with each other. Hence the following argument is correct:

*Every ornament of the Christian character is worthy of constant cultivation;*

*Humility is an ornament of the Christian character:*

*Therefore, Humility is worthy of constant cultivation.*

2. Quorum unum convenit, alterum differt uni et eidem tertio, ea differunt inter se.

*A suspicious habit is not a quality appropriate to a man of sense.*

The subject (*suspicious habit*) agrees with a third thing, (sc. *that which springs from a conscious want of dignity*): but the predicate, (*a quality appropriate*

to a man of sense) differs from that third. Therefore the extremes disagree with each other, and the argument is thus expressed; *Nothing which springs from a conscious want of dignity is a quality appropriate to a man of sense: But a suspicious habit springs from a conscious want of dignity: Therefore, a suspicious habit is not a quality appropriate to a man of sense.*

3. Quæ non conveniunt in uno aliquo eodemque tertio, ea non conveniunt inter se.

Sunto enim A et C, nec assignari possit ejusmodi tertium; Ergo nihil habent commune; Ergo non conveniunt inter se.

No third term can be adduced which will agree with the terms *Men* and *Stones*. Therefore it is impossible to prove that those terms agree with each other; i. e. that *Men are Stones*.

4. Quorum neutri inest quod non sit in alio, ea non differunt inter se.

No idea is comprised in the term *rational-animal* which is not comprised in the term *man*; and vice-versâ, there does not exist in the aggregate of the notions expressed by the term *man* any which is not also comprised in the word *rational-animal*. Therefore it is impossible to find a third term with which one of these terms may agree, and from which the other differs. Therefore these terms cannot differ from each other; that is, it cannot be said that *men are not rational animals*.

5. Quæ non probantur convenire in uno aliquo eodemque tertio, ea non probantur convenire inter se. Dubitari enim potest utrum

detur ejusmodi tertium, et dubitatio ista non tollitur.

6. De quibus non probatur, convenire unum eidem alicui tertio cui alterum differt, ea non probantur differre inter se. Dubitari enim potest, utrum detur ejusmodi tertium, h. e. utrum alterutri insit quod non est in reliquo; et dubitatio ista non tollitur.

The use of a third term in a syllogistic argument is absolutely necessary. The most positive assertion, the most accurate description, the most strenuous appeal to the understanding, the most elegant and forcible amplification will not supply the place of it. Verbiage is often, undoubtedly, mistaken for argument, and thus deceives the mind: but no syllogistic argument exists unless there be a comparison of some two terms with a third, on one or other of the principles contained in the first and second canons.

Those two canons may be considered as axioms; since they challenge immediate assent as soon as understood, and are in practice naturally employed as the foundation on which the superstructure is to be reared, and as the final appeal in argument. They bear some slight analogy to the mathematical axioms, *Things which are equal to the same are equal to one another*; and, *Things of which one is equal and the other not equal to the same, are not equal to one another*. Yet, the objects of the two sciences are so different, that to insist too minutely on the supposed similitude between the mathematical and the logical axioms, might be calculated to mislead or at least to confuse the mind. Nor again is it necessary, in either science, to ascertain whether the axioms primarily present themselves to the

mind in their universal enunciation, as self-evident truths; or whether they are not, in reality, general deductions from individual instances. Whichever may be the theoretical truth, the practice must be the same, in the use of them as a final appeal. Only, if the former be the fact, we refer to them as necessary unalterable truths, in which all must unavoidably acquiesce; in the other case, we appeal to them as principles the most comprehensive and least likely to, be controverted to which our powers of generalization and abstraction will enable us to attain.

§. 3. *Syllogismi Regulæ generales.*

**EX** sex hisce principiis, Syllogismi structura sic deducitur.

1. In omni Syllogismo sunt tres, et tres tantum, termini. Nam Syllogismus omnis probat aliquam conclusionem: Et in illa sunt duo tantum extrema: Et illa neque convenire, neque differre probatur, sine uno, unoque tantum, tertio.

Jam, Prædicatum Quæstionis dici solet *majus extremum, major terminus*; Subjectum Quæstionis, *minor*; Terminus vero tertius, cui quæstionis extrema comparantur, Aristoteli *Argumentum*, vulgo *Medium*: Nam prædicatum quæstionis plerumque amplius est medio; hoc minori.

*Quod bonum est, id certe utile;  
Quod honestum, id bonum; Ergo  
Quidquid honestum, id utile.*

The major extreme or term, or predicate of the question, is *utile*:

The minor extreme or term, or subject of the question, is *honestum*:

The medium, or third term, is *bonum*.

The distinguishing names, *Major*, *Minor*, and *Middle*, are derived from the comparative extent of each, in most syllogisms which have an universal affirmative conclusion. Thus, in the following syllogism, *Whatever betrays<sup>m</sup> meanness is hateful<sup>M</sup>; but flattery<sup>m</sup> betrays<sup>m</sup> meanness: therefore flattery<sup>m</sup> is hateful<sup>M</sup>*: the major extreme (*M*) *hateful* is more extensive in its application than the medium (*μ*) *whatever betrays meanness*, which is only one class of things *hateful*: and this medium is more extensive than the minor term (*m*) *flattery*, which is but one class of *things betraying meanness*.

In the following apparent syllogism there are four terms:

*True wisdom cannot be too dearly purchased: Humility always accompanies true wisdom: Therefore humility cannot be too dearly purchased.*

This rule is not confined to instances of mere equivocation and form; but extends to every occasion in which, through the imperfection of language, the same word is applied in senses analogous to each other, but not precisely the same. We cannot, indeed, avoid the necessity of giving various shades and modifications of signification, and of admitting sometimes a greater and sometimes a smaller number of simple notions, to almost every word we employ. But if we allow that variety in the use of the same word in the course of the same argument, we are guilty of fallacious reasoning. If, for instance, from the premiss, *Charity (love) is greater than faith and hope*, it is inferred that *charity (alms-giving) is the highest Christian grace*; the argument contains four terms. Again, if we reason thus; *Expediency is the best rule of conduct; for nothing*

can be expedient which is not consistent with all divine and human law, and calculated to promote the good of mankind in general: common readers will acquiesce in the truth of the premiss in the purest sense of the word *expediency*; but will practically apply the conclusion in the corrupt sense of the word, namely, as signifying *that which, whether right or wrong, appears most conducive to their private interests or the indulgence of their own desires.*

2. In omni Syllogismo sunt tres, et tres tantum, propositiones. Duæ præmissæ, in quibus Medium cum extremis seorsim conferatur, (nempe *Major*, in quâ cum majori; *Minor*, in quâ cum minori;) una *Conclusio*, in quâ extrema invicem committantur.

N. B. 1. Quod Major dici solet simpliciter, *Propositio*; Minor, *Assumptio*. 2. Quod Medium non ingreditur conclusionem, alias idem per idem probaretur; adeoque non essent tres termini.

*Major premises* } *All sin<sup>m</sup> is injurious<sup>m</sup>;*  
or *proposition,*

*Minor premise* } *All pride<sup>m</sup> is sin<sup>m</sup>;*  
or *assumption,*

*Conclusion,*     *All pride<sup>m</sup> is injurious<sup>m</sup>.*

Here the major term (*m*) is *injurious*:  
the minor term (*n*) is *pride*:  
the medium (*μ*) is *sin*.

The major premiss is that in which the middle term is compared with the *major* extrema; *All sin* is *injurious*:

The *minor* premiss is that in which the middle term is compared with the *minor* extreme ; *All pride is sin* :

The conclusion is that in which the major and the *minor* extreme are brought together ; *All pride is injurious*.

It is more convenient, but by no means necessary to the accuracy of a syllogism, that the major premiss should be first in order. In material arguments it often occurs that the *minor* premiss is first ; and still more frequently that the conclusion begins the sentence ; or, to speak more accurately, that the question having been first stated, it becomes needless to repeat it in the form of a conclusion. Thus, *Habitual cheerfulness is the best promoter of health ; for it checks those secret anxieties and those violent ferments which derange and wear out the constitution ; and whatever has this excellent quality must have a tendency to promote health*. Here the major extreme is, *the best promoter of health* ; and the major premiss is the last proposition in the order of the sentence : the *minor* extreme is, *habitual cheerfulness* ; and the proposition, *for it checks, &c.* is the *minor* premiss. The conclusion, which is not formally expressed, is the same as the *question*, by which the sentence is introduced, *Habitual cheerfulness is the best promoter of health*.

In the most perfect form of syllogisms, the major premiss is usually a general principle, which is calculated to approve itself to every man's judgment, and is therefore not likely to be called in question ; on which account it is sometimes called, by way of eminence, the *Proposition*. The *minor* premiss is on the other hand *assumed*, with particular reference to the conclusion which is to be deduced ; (whence it receives the name *Assumption* ;) and it is more liable to objection. Thus, in the preceding example, it is probable that none would deny that *all sin is injurious*, though some might object that

*there are some kinds of pride which are not sinful, and thus deny the minor, or, in other words, represent the assumption as unfounded.*

In the following apparent syllogism the middle term enters the conclusion.

*Some of those who merit our esteem are learned : But those who have laboured much and successfully in study are learned : Therefore the learned are men who merit our esteem.*

3. Ancipiti medio nihil conficitur. Neque enim affertur in hoc casu unum aliquod idem-que tertium vel in quo extrema convenient, vel cui unum conveniat, alterum differat.

*The end of a good soldier's life is the safety and peace of his country. But death is the end of a good soldier's life: Therefore his death is the safety and peace of his country.* Here the middle term (*the end of a good soldier's life*) is compared in one sense (denoting the aim, the object,) with the major extreme (*the safety and peace of his country*); and in a different sense (denoting the close, the termination) with the minor extreme, (*death*.) The medium, therefore, bears two significations: in consequence of which, the extremes are not compared with one and the same third term.

Mr. Pillet, in his description of English manners, affirms, that the disposition of the English to suicide is evident from the number of skulls daily found in the Thames. He uses a doubtful medium, confusing the small boat called *scull*, with the human *scull*. He argues thus:

*A people whose chief river abounds in skulls (craniis) is a people addicted to suicide. The English are a people whose chief river abounds in skulls (cymbulis); Therefore the English are a people addicted to suicide.*

A favourite argument of Voltaire was this; *The cause of evil is itself evil; The Christian religion is the cause of evil; it is therefore itself evil.* The fallacy lies in the doubtful medium. The *proximate and real cause* of evil is evil; but Christianity is only the *accidental cause*, that is, the *occasion* of the divisions and bloodshed which have been perpetrated under the shelter of its name. The extremes therefore are not compared with one single term.

It is obvious that this rule is only a particular branch of the first.

4. Medium non distributum est anceps.  
Esto enim B terminus communis in b et  $\beta$  divisibilis; Ergo b et  $\beta$  sunt opposita: et tamen vere dicitur, Aliquod B est b, et Aliquod B est  $\beta$ . Quare aliquod B est Medium anceps.

If the middle term be not distributed, it is a common noun taken in each premiss *particularly*; that is, denoting *some portion only* of the things signified by it. Consequently it may be employed in each of the premises to signify a *distinct* part of its whole extent; in which case the extremes are not compared with one and the same third term.

*All metals are dug out of the earth;*

*Coal is dug out of the earth: therefore,*

*Coal is a metal.*

Here the middle term is not distributed; the *things dug out of the earth* referred to in the major premiss form a class distinct from and opposed to that class of *things dug out of the earth* which is signified in the minor premiss. It is therefore a *doubtful* term.

The same fundamental error occurs in the following arguments:

*Some animals are not quadrupeds; But all elephants are animals; consequently some elephants are not quadrupeds.*

*Some virtuous men are men of unpolished habits; for all virtuous men are free from any disposition to flatter; and we know that many men who are indisposed to flatter run in some degree into the opposite extreme and allow themselves in an unpleasing roughness of manners. That is,*

*Some who are indisposed to flatter retain unpolished habits; All virtuous men are indisposed to flatter: Therefore some virtuous men retain unpolished habits.*

*Some effectual check to the progress of seditious publications is absolutely essential to the safety of our country; The total abolition of the art of printing would prove an effectual check to their progress: Therefore the total abolition of the art of printing is absolutely necessary to the safety of our country.*

5. Quare Medium in præmissis semel ad minimum distribui debet; sufficit tamen, si vel semel distribuatur. Nam 1. ad probandum A est C, conveniat C alicui B, et A omni; Ergo eidem alicui B: Ergo affertur unum aliquod idemque tertium &c. 2. ad probandum A non est C, conveniat C alicui B, et A differat omni; Ergo eidem alicui B: Ergo affertur &c.

*If one of the extremes agrees with some part of the medium, and the other extreme agrees with every thing which is signified by the medium; this extreme must also agree with the same part of the medium with which the former agrees: because the part is included in the whole.*

Again ; if one extreme agrees with *some part* of the things denoted by the middle term ; and the other extreme *wholly* differs from the middle term *taken in its utmost extent* ; then this extreme must also differ from the *part* of the middle term with which the former extreme agrees. So that in each case, the medium is virtually the same in both the premises.

<i>All injustice<sup>D</sup> is evil ;</i>	B is A.
<i>Persecution is injustice :</i>	C is B.
<i>Persecution is evil.</i>	C is A.

To prove that (A) *evil* agrees with, that is, is correctly predicated of (C) *persecution* ; let (C) *persecution* agree with *some* (B) *injustice* ; and let (A) *evil* agree with *all* (B) *injustice*. But *all injustice* comprehends every branch of *some injustice* ; therefore (A) *evil* agrees with the same *some injustice* with which (C) *persecution* agrees, and they are duly compared with one and the same third term.

<i>Acquisitions<sup>D</sup> of real value are not</i>	} B is not A.
<i>within the reach of the idle ;</i>	
<i>But literature is an acquisition of</i>	} C is B.
<i>real value ;</i>	
<i>Consequently it is not within the reach</i>	} C is not A.
<i>of the idle.</i>	

6. Processus ab extremo non distributo in præmissis, ad idem distributum in conclusione, vitiosus est. Nam ex *aliquo* non sequitur *omne*. Esto enim verum quod aliquod ; Ergo potest esse verum quod aliquod non ; (nam Subcontrariæ possunt esse simul veræ :) Ergo de aliquo potest affirmari quod non de omni. Esto rursus verum quod aliquod non : Ergo potest

esse verum quod aliquod: Ergo de aliquo potest negari quod non de omni.

By the principles of opposition of propositions, the truth of an universal cannot be inferred from the truth of the particular; and subcontrary propositions may be both true. Consequently the agreement or disagreement of the universal or *distributed* term cannot be inferred from the agreement or disagreement of the particular or *undistributed* term. If it is true, *Some wars are just*, it may also be true that *Some wars are not just*. Hence it cannot be inferred from either that *All wars are just*; or that *No wars are just*. Therefore that may be affirmed or denied of *some*, which cannot be affirmed or denied of *all*.

*No tale-bearer is worthy of confidence;  
All tale-bearers are great talkers: therefore  
No great<sup>D</sup> talkers are worthy of confidence.*

The process of the minor extreme is illicit. The predicate of the minor premiss is *Some great talkers*; therefore the only conclusion it authorizes is, *Some great talkers are not worthy of confidence*.

*Some good men have been burned;  
No murderers are good men: therefore  
No murderers have been burned<sup>D</sup>.*

The process of the major extreme is here illicit. In its premiss, as the predicate of an affirmative, it is *not distributed*; in the conclusion, as the predicate of a negative, it is *distributed*. No inference can be deduced from these premises.

*The study of nature is highly beneficial in expanding the mind; but an acquaintance with ancient languages is a very different thing from the study of nature; and consequently has not the same beneficial*

*effect.* Here the distribution of the *major* extreme is inaccurate.

*We know that our sight and our touch are bodily senses ; now experience teaches us how frequently both sight and touch are deceived ; we infer then that our bodily senses are universally liable to be misled.* Here the distribution of the *minor* term is erroneous. The inversion of the order of the premises (the *minor* premiss being first) is a deviation from the form, but does not render the argument incorrect. The premises will admit of the particular conclusion, *Some of our senses may be deceived.*

7. *Præmissis negantibus nihil probatur : Affertur enim tertium cui utrumque extremum differt ; non autem cui vel utrumque conveniat, vel unum conveniat, alterum differat.*

The disagreement of any two terms with a third term does not afford any ground for inference as to their mutual agreement or difference. The absurdity of the following sentences, though they are placed in syllogistic form, is obvious.

*No wicked men are happy ; but some poor men are not wicked ; therefore some poor men are happy : or, therefore some poor men are not happy.*

*No rich men are exempt from death ; nor are they free from error ; therefore those who are free from error are exempt from death : or, therefore none who are free from error are exempt from death.*

8. Si præmissarum altera sit negativa, erit etiam Conclusio. Nam præmissarum reliqua est affirmativa: Ergo extremorum unum differt medio, alterum convenit: Ergo extrema

differunt inter se: Ergo conclusio est negativa.

A negative premiss asserts the disagreement between one of the extremes and the medium. The other premiss, which must (by the preceding rule) be affirmative, asserts the agreement of the other extreme with the medium. Therefore (by canon 2.) the extremes differ, and the conclusion is negative. For example,

*No mere man is infallible ; now the pope is but a man ; therefore the pope is not infallible.*

9. Contra, si Conclusio sit negativa, erit etiam altera præmissarum. Nam extrema differunt inter se: Ergo eorum unum convenit medio, alterum differt: Ergo præmissarum altera affirmat, reliqua negat.

The premises necessary to prove a negative conclusion are an affirmative and a negative; since the extremes can be shewn to differ only by means of a middle term which agrees with the one and differs from the other.

If it is to be proved that *Paganism is not a harmless invention of unenlightened mortals, intending, though ignorantly, to discover the true God*; it is necessary to adduce some medium with which *paganism* shall agree, and from which a *harmless invention*, &c. shall differ; or vice-versâ, with which the latter shall agree, and the former disagree. The term *whatever originates in a wilful departure from the truth* will serve for a middle term of the former kind; the term *that of which ignorance alone is the cause* will serve for a medium of the latter description. Hence the two following arguments

are correct. They are given *materially*; it will be easy for the reader to reduce them to formal syllogisms.

*It is sufficiently evident that paganism must have originated in a wilful departure from the truth: indeed, its heinousness as involving the guilt of presumptuous opposition to the Divine will, is not to be disputed. It is, therefore, but a vain apology for heathenism to treat it as a harmless invention of poor unenlightened mortals, labouring, with good intentions but under invincible ignorance, to discover the true God, and to perform to him an acceptable service.*

*That system of error, indeed, of which ignorance alone was the cause, might be pleaded for as a harmless invention of poor unenlightened mortals; but ignorance could not be the cause of the introduction of false divinities by the immediate descendants of Cain and of Noah; therefore heathenism cannot be vindicated on any plea of harmlessness.*

It has been observed (page 78,) that some propositions apparently negative are really affirmative; the adverb of negation being intended to qualify, not the copula, but one of the extremes. Hence arguments apparently inconsistent with the three fundamental rules concerning negatives in a syllogism may be correct. For instance;

*He who loves not his neighbour is not a true Christian; but the slanderer loves not his neighbour; therefore the slanderer is not a true Christian.*

Here the minor premiss is affirmative; for the particle *not* belongs to the predicate, as is evident by comparing the same term in the major premiss; for the medium of the syllogism is the *indefinite* noun, *he who loveth not his neighbour*.

Again; *That which is not reducible to parts is eternal; the human soul is not reducible to parts; therefore it is eternal.* This syllogism (in which an affirmative conclusion is apparently deduced from a negative premiss) consists of three affirmative pro-

positions; the middle term being, *that which is not reducible to parts*. It might be harshly yet correctly expressed, *Every thing non-reducible to parts is eternal; the human soul is non-reducible to parts; therefore the human soul is eternal*.

10. Præmissis particularibus nihil probatur. Nam præmissarum altera affirmat: Ergo in illâ medium non distribuitur: Ergo distribui debet in reliquâ: Ergo illa est negativa in quâ medium prædicatur: Ergo conclusio negativa: Ergo prædicatum ejus distribuitur, quod in præmissis non est distributum; Fuit enim vel affirmativæ terminus alter, vel subjectum negativæ; horum vero nullus distribuitur.

1. If both the premises in a syllogism be *particular affirmative* propositions, they cannot contain any distributed term. In this case therefore the medium is not distributed, and (by rule 4,) no conclusion can be deduced. Thus no inference can be drawn from such premises as, *Some men are virtuous, but some are learned. Some of the planets are attended with satellites; but several of the heavenly bodies which the naked eye can discern are planets*.

2. If one of the premises be *negative*, it will contain the only distributed term in the antecedent of the syllogism, which term must therefore be the medium. It follows, that neither of the extremes is distributed in the premises, and consequently (by rule 6,) neither may be distributed in the conclusion. But the conclusion must (by rule 8,) be negative; and in negative propositions one term at least must be distributed. In this case therefore there will be an illicit process of one extreme.

This may be illustrated by the following schemes.

I. Med. Maj.		O. Maj. Med. <sup>D</sup>
O. Min. Med. <sup>D</sup>		I. Min. Med.
O. Min. Maj. <sup>D</sup>		O. Min. Maj. <sup>D</sup>

In both these cases the process from an undistributed major extreme in the premiss to the same distributed in the conclusion is manifest. Accordingly the following arguments are totally incorrect:

*Some of the older strata of the earth are not characterized by animal remains; Several of the superior strata are strongly characterized by them; therefore some of these are not to be classed among the older strata.*

*Some strictly virtuous men possess qualities which render them unpleasant companions; Some wealthy persons are not strictly virtuous; consequently some wealthy persons do not possess those qualities which render them unpleasant companions.*

11. Si præmissarum altera particularis sit, conclusio quoque particularis est. Sit enim 1. Præmissarum altera particularis affirmativa: Ergo in illâ nec extremum suum nec medium distribuitur: Ergo medium distribuitur in reliquâ, quæ etiam Universalis est, sitque 1. Affirmativa: Ergo in illâ medium subicitur, et extremum medio attributum non distribuitur: Ergo neutrum extremorum distribuitur in præmissis: Ergo neutrum in conclusione: Ergo conclusio particularis affirmativa est. Sit 2. Negativa: Ergo conclusio negativa: sed debet habere extremum non distributum: Ergo particularis negativa est.

Sit 2. Præmissarum altera particularis negativa: Ergo reliqua Universalis affirmativa: Ergo in præmissis duo tantum termini distribuantur: Ergo conclusio habet extremum non distributum: Ergo cum negativa sit, erit etiam particularis.

If one of the premises be *particular*, the other must be *universal*. If the particular premiss be *affirmative*, the universal may be either affirmative or negative. If the particular be *negative*, the universal must be affirmative. Hence arise three forms in which the premises may occur; namely, A. I. or I. A.; E. I. or I. E.; and A. O. or O. A.

1. If the premises are both affirmative; the particular does not distribute either extreme, and the universal distributes only the subject; this distributed subject must therefore be the middle term. Consequently neither of the extremes of the question are distributed in the premises; therefore they must not be distributed in the conclusion; a limitation which is incompatible with any other species of proposition than the *particular affirmative*. Of this kind therefore the conclusion must be. Thus,

A. Med. <sup>D</sup>	Maj.	I. Med.	Maj.
I. Min.	Med.	A. Med. <sup>D</sup>	Min.
I. Min.	Maj.	I. Min.	Maj.

*All minerals are fossils; but some of the most useful substances in use are minerals; therefore some of the most useful substances in use are fossils.*

*Some recreations are necessary to the preservation of our health and spirits; all recreations however are liable to be carried to excess; so that some things liable to be carried to excess are necessary for the preservation of our health and spirits.*

2. If the antecedent consists of a *particular affir-*

*mative* and an *universal negative*, the former distributes neither term; the latter distributes both: of which one is necessarily the middle term; the other is one of the extremes of the question. Therefore only one extreme can be distributed in the conclusion. But the negative premiss requires a *negative* conclusion; and a negative proposition distributing only one extreme must be *particular*.

E. Med. <sup>D</sup>	Maj. <sup>D</sup>		E. Maj. <sup>D</sup>	Med. <sup>D</sup>
I. Min.	Med.		I. Min.	Med.
O. Min.	Maj. <sup>D</sup>		O. Min.	Maj. <sup>D</sup>

*Upright and honest men ought never to be treated with contempt; Some men of very mean attainments and weak judgment are upright and honest; therefore some men of mean attainments and weak judgment ought not to be treated with contempt.*

3. If the premises are O and A, they contain two distributed terms; of which one being the medium, it remains that one only can be an extreme of the question; consequently only one distributed extreme is admissible into the conclusion. The conclusion must be *negative*, and therefore, with that limited distribution, can be no other than *particular*.

A. Maj. <sup>D</sup>	Med.		O. Med.	Maj. <sup>D</sup>
O. Min.	Med. <sup>D</sup>		A. Med. <sup>D</sup>	Min.
O. Min.	Maj. <sup>D</sup>		O. Min.	Maj. <sup>D</sup>

*All real virtue is consistent with truth; but there are some kinds of candour which are not consistent with truth; therefore some candour is not real virtue.*

12. Quod si Conclusio particularis sit, non necesse est præmissarum alteram particularem esse. Fieri enim potest, ut instituto meo sufficiat subalternata, quando subalternans potuit inferri. Et cum illæ sint simul veræ, liberum

est utramvis inferre. Quanquam stricte loquendo, argumentatio non est accurata; nam subalternatæ veritas non immediate deducitur ex præmissis, sed ex subalternante.

This has not so much the nature of a rule, as of a caution. The eighth rule indeed, namely, that a negative premiss requires a negative conclusion, is reciprocal; for a negative conclusion also requires a negative premiss. But though, according to the eleventh rule, a particular premiss requires a particular conclusion, it is not true, conversely, that a particular conclusion requires a particular premiss. For instance,

*Whatever wholly engrosses the soul renders us incapable of judging correctly concerning any future pleasure or pain: But all present experience of pleasure or pain wholly engrosses the soul: Therefore some present experience of pleasure or pain renders us incapable of judging correctly concerning those which are future.*

This syllogism is not incorrect as to form; yet the more immediate conclusion from the premises would be, *Therefore EVERY present experience of pleasure or pain renders us incapable, &c.*; whence the subalternate, *some present experience, &c.* is to be inferred by the laws of opposition.

But if only the particular conclusion be required, it is more judicious to lay down in the premises no more than is necessary to authorize that conclusion. To do otherwise is to afford to an opponent a needless opportunity to cavil. In the above instance it might be objected to the minor premiss, that it is not true that *all present experience of pleasure wholly engrosses the mind*; and the objection, though in reality it does not affect the argument, might appear so to do to superficial readers or hearers, and would, at the least, divert the attention from the

with and force of the argument. This inconvenience would be avoided by adopting the *particular* for the *universal* premiss; thus, *It generally occurs, (or, it often occurs, or it sometimes occurs,) that present experience of pleasure wholly engrosses the soul; and therefore such present experience generally (or often, or sometimes) renders us incapable of judging correctly concerning future pleasure or pain.*

Two universal propositions may however bear such a relation to each other as will authorize no more than a particular inference: as,

*All the stars are more distant from us than we are from the sun; But all the stars shed some degree of light on the earth; Therefore some things which shed a degree of light on the earth are more distant from us than we are from the sun.*

An universal conclusion (*all things which shed light, &c.*) would offend against the sixth rule, by distributing the minor extreme when not distributed in its premiss. Yet the true conclusion (*some things which shed light, &c.*) might be drawn, if either of the premises were expressed particularly. As the argument stands, the minor premise is exposed to the objection that there are probably many stars the light of which has not yet reached the earth; which could not apply to it if thus expressed;

*All the stars are more distant from us than we are from the sun; but some (or many) stars shed light on the earth; therefore some (or many) things which shed light on the earth are more distant from us than we are from the sun.*

Syllogismi generales regulas complectitur hoc tetrastichon.

Distribuas medium; nec quartus terminus adsit;

Utraque nec præmissa negans, nec particularis :

Sectetur partem conclusio deteriorem :

Et non distribuat, nisi cum præmissa, negative.

The first of these lines expresses the substance of the first five rules above given ; the second line refers to the seventh and tenth rules ; the third to the eighth and eleventh rules ; and the last line to the sixth and the ninth. The expression of the third line is derived from a fancied superiority of universal propositions over particulars ; and of affirmatives over negatives.

All these rules of structure are nothing more than the application of the two primary canons to particular cases ; they simply amount to this, that when those circumstances occur which are prohibited by the rules, there is no comparison of two objects with a third term, with which both agree ; or with which one agrees and from which the other differs. Consequently, the arguments in support of these rules consist solely in an appeal to those canons.

The most convenient method of applying these rules to the examination of syllogisms (which is the most natural means of familiarizing the mind to them) is to adopt the following order. First, to observe whether the terms are correct both as to number and sense ; (rules 1. and 3.) and whether the propositions are correct as to number. (rule 2.) Then, to compare the syllogism with the rules concerning particular and negative propositions, (rules 7—12.) and lastly, to examine the distribution of the medium, (rules 4, 5.) and of the extremes, (rule 6.) Several syllogisms both correct and incorrect are given, for the sake of practice, at the close of the Appendix.

§. 4. *De Modis Syllogismorum.*

SUPEREST per hasce regulas inquirere, quot modis componi possunt tres propositiones de inesse, ut syllogismus concipiant. Quâ in inquisitione duo spectanda sunt :

1. *Modus*, sive legitima determinatio propositionum secundum quantitatem et qualitatem.

2. *Figura*, sive legitima dispositio medii cum partibus quæstionis.

*That which renders the mind acquainted with its own powers is highly beneficial. Metaphysical studies render the mind acquainted with its own powers; therefore metaphysical studies are highly beneficial.*

To describe this syllogism as having the middle term employed as the subject to the major extreme, and predicated of the minor extreme, is to describe it by the *figure* to which it belongs. For such a description points out the arrangement of the medium with the two extremes or parts of the question or conclusion.

To describe the same syllogism as consisting of three universal affirmative propositions, is to state its *mode*; that is, the proper designation of the propositions according to their quantity and essential quality.

Modi sunt in universum 64. Nam, ut supra ostensum est, ad syllogismum faciunt propositiones tantum quatuor, A. E. I. O. Quare concipi potest quadruplex tantum major in syllogismo; cuilibet vero majori quadruplex

tantum minor adjungi; unde 16 paria præmissarum: et singulis præmissis quadruplex tantum conclusio; unde 64 Modi syllogismorum.

AAA. AAE. AAI. AAO. \*AEA. AEE.  
AEI. AEO. \*AIA. AIE. AII. AIO. \*AOA.  
AOE. AOI. AOO.

EAA. EAE. EAI. EAO. \*EEA. EEE.  
EEI. EEO. \*EIA. EIE. EII. EIO. \*EOA.  
EOE. EOI. EOO.

IAA. IAE. IAI. IAO. \*IEA. IEE. IEI.  
IEO. \*IIA. IIE. IIL. IIO. \*IOA. IOE. IOI.  
IOO.

OAA. OAE. OAI. OAO. \*OEA. OEE.  
OEI. OEO. \*OIA. OIE. OII. OIO. \*OOA.  
OOE. OOI. OOO.

This table represents all the possible modes in which any three out of four kinds of propositions can be placed together, supposing common sense to be wholly abolished from the art of reasoning; for the rules of structure are nothing more than an arrangement of the dictates of common sense. The slightest comparison of them with those rules will shew which of the combinations will produce correct syllogisms, and thus anticipate the following enumeration.

Ex his excluduntur sedecim per regulam  
7. propter præmissas negantes, viz. EEA.  
EEE. EEI. EEO. \*EOA. EOE. EOI. EOO.

\*OEA. OEE. OEI. OEO. \*OOA. OOE.  
 OOI. OOO. Duodecim per reg. 10. propter  
 præmissas particulares, viz. IIA. IIE. III. IIO.  
 \*IOA. IOE. IOI. IOO. \*OIA. OIE. OII.  
 OIO. Duodecim per reg. 8. quia præmissa-  
 rum altera negat, sed non conclusio, viz.  
 AEA. AEI. AOA. AOI. \*EAA. EÁI. EIA.  
 EII. \*IEA. IEI. \*OAA. OAI. Octo per reg.  
 11. quia præmissarum altera particularis est,  
 sed non conclusio, viz. AIA. AIE. AOE.  
 \*EIE. \*IAA. IAE. IEE. \*OAE. Denique  
 quatuor per reg. 9. quia conclusio negativa  
 est sed neutra præmissarum, viz. AAE. AAO.  
 AIO. \*IAO.

Excluduntur igitur in universum modi 52  
 $= 16 + 12 + 12 + 8 + 4$ ; e quibus multi  
 contra plures regulas peccant, quamvis una  
 tantum notetur.

Supersunt ( $64 - 52 =$ ) 12 modi ad syllo-  
 gismum utiles, viz. AAA. AAI. AEE. AEO.  
 AII. AOO. \*EAE. EAO. EIO. \*IAI. IEO.  
 \*OAO.

#### §. 5. *Figura Syllogismorum.*

FIGURÆ Syllogismorum sunt quatuor: Nam  
 Medium, quod cum utroque extremo compa-  
 ratur, vel 1. subjicitur majori et tribuitur mi-  
 nori, et fit *figura prima*; vel 2. tribuitur utri-

que, et fit *secunda*; vel 3. subjicitur utrique, et fit *tertia*; vel 4. tribuitur majori et subjicitur minori, et fit *quarta*. Quæ omnia sequenti schemate declarantur.

*Dispositio trium terminorum, scilicet majoris  
A, medii B, minoris C, in Figurâ*

1.	2.	3.	4.
B. A.	A. B.	B. A.	A. B.
C. B.	C. B.	B. C.	B. C.
C. A.	C. A.	C. A.	C. A.

Fig. 1.	Fig. 2.	Fig. 3.	Fig. 4.
MED. Maj.	Maj. MED.	MED. Maj.	Maj. MED.
Min. MED.	Min. MED.	MED. Min.	MED. Min.
Min. Maj.	Min. Maj.	Min. Maj.	Min. Maj.

Quare quælibet figura excludit adhuc sex modos: nempe,

1. Propter medium non distributum: Prima duos IAI. OAO. Secunda quatuor AAA. AAĪ. AII. IAI. Quarta duos AII. AOO.

2. Propter processum majoris illicitum: Prima quatuor AEE. AEO. AOO. IEO. Secunda duos IEO. OAO. Tertia quatuor AEE. AEO. AOO. IEO. Quarta duos IEQ. OAO.

3. Propter processum minoris illicitum: Tertia duos AAA. EAE. Quarta duos AAA. EAE.

It is obvious that the distribution of the terms must be affected by their arrangement; so that a mode which is correct under one figure will cease to be so under another. For example, let the mode AAA. be successively applied to each of the figures.

1. *They who participate in the security of life and property conferred by a well-arranged system of government are bound by the strongest obligations to contribute to the maintenance of that government; But all Englishmen participate in that security; Therefore all Englishmen are bound to contribute to the maintenance of government.*

2. *All the moral virtues are habits; But skill in the operations of any mechanical art is a habit; Consequently such skill is a moral virtue.*

3. *Young persons are liable to be led astray by the violence of their passions; But young persons are happy in proportion to the subjugation of their passions; Therefore all who are happy in proportion to the subjugation of their passions are liable to be led astray by their violence.*

4. *Coal is a stratum of the earth containing much vegetable matter; But whatever strata contain vegetable matter are of a later formation than granite; Therefore whatever is of a later formation than granite is coal.*

The syllogism in the *first* figure is correct. That in the *second* figure is incorrect, for the medium is not distributed. The syllogisms in the *third* and *fourth* figures are incorrect, on account of the illicit process of the minor extreme. And a comparison of these errors with the particular disposition of the terms will evince that they belong, not merely to the syllogisms adduced, but to any syllogisms in those figures consisting of three universal affirmative propositions; that is, in the mode AAA.

The former catalogue of excluded modes (pages 136, 137.) extends to those only which are erroneous as to the quantity or the quality of the *propositions*. The enumeration here given comprehends

those which are inaccurate as to the extent or distribution of the *terms*. In all these, one only excepted, the faulty distribution is occasioned by the determinate situation given to the terms by the respective figures: so that the mode which, in one figure, is accurate, in another figure becomes inaccurate. The exception referred to consists in the mode IEO, which is essentially and necessarily incorrect. For the conclusion O requires the distribution of the major extreme; which extreme the major premiss I will not allow to be distributed, in whatever situation it may stand, whether as subject or predicate. It should therefore have been stated that there are 11 (not 12) modes in which syllogisms may be formed.

Supersunt Modi certo et necessario conclus-  
dentes 24; sex in quâlibet Figurâ.

*In Figurâ I.*

<i>bAr</i>	Omne	B	est	A
<i>bA</i>	Omne	C	est	B: <i>Ergo</i>
<i>rA</i>	Omne	C	est	A.
<i>cE</i>	Nullum	B	est	A
<i>lA</i>	Omne	C	est	B: <i>Ergo</i>
<i>rEnt</i>	Nullum	C	est	A.
<i>dA</i>	Omne	B	est	A
<i>rI</i>	Aliquod	C	est	B: <i>Ergo</i>
<i>I</i>	Aliquod	C	est	A.
<i>fE</i>	Nullum	B	est	A
<i>rI</i>	Aliquod	C	est	B: <i>Ergo</i>
<i>O</i>	Aliquod	C	non est	A.

A	Omne	B	est	A
A	Omne	C	est	B: <i>Ergo</i>
I	Aliquod	C	est	A.
E	Nullum	B	est	A
A	Omne	C	est	B: <i>Ergo</i>
O	Aliquod	C	non est	A.

## 1. BARBARA.

He who derives a benefit from every exertion of his industry is likely to be industrious; A journeyman who works by the piece derives a benefit from every exertion of his industry: Therefore a journeyman who works by the piece is likely to be industrious.

## 2. CELARENT.

That which necessarily becomes a hardship upon individuals should not be authorized by legislative enactment; The impress of sailors necessarily becomes a hardship upon individuals: Therefore the impress of sailors should not be authorized by legislative enactment.

## 3. DARII.

Every thing which obstructs the free course of justice deserves the reprobation of the virtuous; There are modes of enforcing the strict letter of the law, which obstruct the free course of justice: Therefore there are modes of enforcing the strict letter of the law, which deserve the reprobation of the virtuous.

## 4. FERIO.

Those who endure dangers and face death merely for the sake of acquiring glory to themselves, without being influenced by any desire to benefit their

country, are not possessed of true fortitude; Some of the heroes of antiquity endured dangers and faced death merely for the sake of acquiring glory to themselves, without being influenced by any desire to benefit their country: And consequently, some of the heroes of antiquity ~~were~~ not possessed of true fortitude.

## 5. AAI.

Every thing which belongs to man is imperfect;  
All the arts of civilization are of human invention:  
Therefore some of [or, all] the arts of civilization are imperfect.

## 6. EAO.

No change of place can satisfy the discontented;  
All expeditions to foreign countries consist in change of place: Therefore some expeditions to foreign countries do not satisfy the discontented.

*In Figurâ II.*

cEs	Nullum	A	est	B
A	Omne	C	est	B: <i>Ergo</i>
rE	Nullum	C	est	A.

cAm	Omne	A	est	B
Es	Nullum	C	est	B: <i>Ergo</i>
trEs	Nullum	C	est	A.

fEs	Nullum	A	est	B
tI	Aliquod	C	est	B: <i>Ergo</i>
nO	Aliquod	C	non est	A.

bAr	Omne	A	est	B
Ok	Aliquod	C	non est	B: <i>Ergo</i>
O	Aliquod	C	non est	A.

E Nullum A est B  
 A Omne C est B: *Ergo*  
 O Aliquod C non est A.  
  
 A Omne A est B  
 E Nullum C est B: *Ergo*  
 O Aliquod C non est A.

## 1. CESARE.

Nothing which is in its own nature eligible is in its immediate and necessary consequences the source of misery to many; War undoubtedly is in its immediate and necessary consequences a source of misery to many: Therefore war is not in its own nature eligible.

## 2. CAMESTRES.

All those who are qualified for sea-service must possess some knowledge of the arts of navigation; Mere inland watermen do not possess any knowledge of the arts of navigation: Therefore mere inland watermen are not qualified for sea-service.

## 3. FESTINO.

No man of sound sense can despise the study of the classics; Some modern pretenders to literature do, however, despise the study of the classics: Therefore some modern pretenders to literature are not men of sound sense.

## 4. BAROKO.

All the fixed stars emit light from themselves; Several, however, of the heavenly bodies do not emit light from themselves: Therefore several of the heavenly bodies are not fixed stars.

*In Figurâ III.*

<i>dAr</i>	Omne	B	est	A
<i>Ap</i>	Omne	B	est	C: <i>Ergo</i>
<i>tI</i>	Aliquod	C	est	A.
<i>fEl</i>	Nullum	B	est	A
<i>Ap</i>	Omne	B	est	C: <i>Ergo</i>
<i>tOn</i>	Aliquod	C	non est	A.
<i>dIs</i>	Aliquod	B	est	A
<i>Am</i>	Omne	B	est	C: <i>Ergo</i>
<i>Is</i>	Aliquod	C	est	A.
<i>bOk</i>	Aliquod	B	non est	A
<i>Ar</i>	Omne	B	est	C: <i>Ergo</i>
<i>dO</i>	Aliquod	C	non est	A.
<i>dAt</i>	Omne	B	est	A
<i>Is</i>	Aliquod	B	est	C: <i>Ergo</i>
<i>I</i>	Aliquod	C	est	A.
<i>fEr</i>	Nullum	B	est	A
<i>Is</i>	Aliquod	B	est	C: <i>Ergo</i>
<i>On</i>	Aliquod	C	non est	A.

## 1. DARAPTI.

To be ashamed of one's birth, profession, or rank in life is a symptom of a weak mind; To be ashamed of one's birth, profession, or rank in life is by some esteemed modesty: Something, therefore, which is by some esteemed modesty is a symptom of a weak mind.

## 2. DISAMIS.

Some practices which the divine law allows are under particular circumstances inexpedient; All practices which the divine law allows are in themselves consistent with holiness: Therefore some things in themselves consistent with holiness are under particular circumstances inexpedient.

## 3. DATISI.

Every kind of pride is wholly inconsistent with the spirit of true religion; Yet there are several kinds of pride which are highly commended by the world: Therefore there are feelings highly commended by the world which are wholly inconsistent with the spirit of true religion.

## 4. FELAPTON.

No branch of useful science is attainable in its utmost perfection by human faculties; Every branch of useful science is worthy of some exertion of intellect: Therefore some things which are worthy of some exertion of intellect are not attainable in their utmost perfection by human faculties.

## 5. BOKARDO.

Some compositions of an imitative nature, calculated by sublimity of idea and beauty of diction to expand and delight the mind and to excite every noble passion, are not written in verse; All such compositions however are justly called poems: Therefore some works justly called poems are not written in verse.

## 6. FERISON.

No animal remains are discovered in the primitive or granitic rocks; Some animal remains are discovered in rocks of a very hard texture: Therefore some things which are discovered in rocks of a very hard texture are not discovered in primitive or granitic rocks.

*In Figurâ IV.*

<i>brAm</i>	Omne	A	est	B
<i>An</i>	Omne	B	est	C: <i>Ergo</i>
<i>tIp</i>	Aliquod	C	est	A.
<i>cAm</i>	Omne	A	est	B
<i>En</i>	Nullum	B	est	C: <i>Ergo</i>
<i>Es</i>	Nullum	C	est	A.
<i>dIm</i>	Aliquod	A	est	B
<i>Ar</i>	Omne	B	est	C: <i>Ergo</i>
<i>Is</i>	Aliquod	C	est	A.
<i>fEs</i>	Nullum	A	est	B
<i>Ap</i>	Omne	B	est	C: <i>Ergo</i>
<i>O</i>	Aliquod	C	non est	A.
<i>frEs</i>	Nullum	A	est	B
<i>Is</i>	Aliquod	B	est	C: <i>Ergo</i>
<i>On</i>	Aliquod	C	non est	A.
<i>A</i>	Omne	A	est	B
<i>E</i>	Nullum	B	est	C: <i>Ergo</i>
<i>O</i>	Aliquod	C	non est	A.

## 1. BRAMANTIP.

All who endeavour to deceive the more respectable part of the community are careful to put on the semblance of a virtuous character; All who are careful to put on the semblance of a virtuous character are likely to be thought profitable companions for the young: Therefore some who are likely to be thought profitable companions for the

young, in fact endeavour to deceive the more respectable part of the community.

## 2. CAMENES.

All the planets are opaque bodies ; No opaque bodies are capable of transmitting light in any other way than by reflection : Therefore no bodies capable of transmitting light in any other way than by reflection are planets.

## 3. DIMARIS.

Some learned men are deeply involved in prejudice ; All who are deeply involved in prejudice are suspicious advisers : Therefore some suspicious advisers are learned men.

## 4. FESAPO.

No vice is to be admitted as a species of relaxation suited to a Christian ; Every species of relaxation suited to a Christian consists of a cessation from ordinary occupations : Therefore some cessation from ordinary occupations is not vice.

## 5. FRESISON.

No fallacious argument is a legitimate mode of persuasion ; Some legitimate modes of persuasion fail of producing acquiescence : Therefore some arguments which fail of producing acquiescence are not fallacious arguments.

*Barbara, Celarent, Dar'ii, Ferioque, prioris:*  
*Cesare, Camestres, Festino, Baroko, secundæ:*  
*Tertia, Darapti, Disamis, Datisi, Felapton,*  
*Bokardo, Ferison, habet: Quarta insuper addit*  
*Bramantip, Camenes, Dimaris, Fesapo, Fresison:*

Quinque *Subalterni*, totidem *Generalibus* orti,  
Nomen habent nullum, nec, si bene colligis,  
usum.

§. 6. *De Modorum Demonstratione.*

ATQUE omnes quidem 24 catenus concludere, quod in iis convenientia vel dissidium extremorum certo atque necessario colligatur, ex Principio primo et secundo abunde constat.

Quod optime demonstrat Aristoteles ad hunc modum.

Statuit primo Theorema, quod Scholastici vocant *Dictum de Omni et Nullo*; scil. "Quod  
"prædicatur Universaliter de alio, (i. e. de termino distributo,) sive affirmative, sive negative, prædicatur similiter de omnibus sub eo  
"contentis."

Admisso hoc Theoremate (quod axioma sponte perspicuum est) constat una, modos quatuor priores in primâ certo atque necessario concludere. Nam eorum major ostendit majus extremum prædicari de medio distributo; et minor, minus extremum sub medio contineri.

The first figure consists simply of an appeal, in relation to some subordinate case, to a general judgment which we have previously derived either from observation or scientific induction, or in which we acquiesce either from the intuitive approbation

of the mind, or from the influence of authority ; and which we conceive to be so obvious as to command universal assent.

*Quod bonum, id certe utile ;*

*Quod honestum, id bonum ; Ergo*

*Quidquid honestum, id utile.*

Here *utile* is, in the major premiss, predicated universally affirmatively of *bonum* ; but *honestum* is declared in the minor premiss to be comprehended under *bonum* ; therefore *utile* is predicated in the same manner, that is, affirmatively, of *honestum* ; in other words, it is inferred that *quidquid honestum est, id utile*.

*Quod contra naturam est, id non est utile :*

*Hominem hominis incommodo suum augere commodum est contra naturam :*

*Ergo, hominem hominis incommodo suum augere commodum non est utile.*

The major extreme, *utile*, is, as stated in the major premiss, predicated universally, negatively, of *quod contra naturam est*, which is the medium ; but the minor extreme *hominem hominis incommodo suum augere commodum*, is stated in its premiss to be comprised under that medium : therefore the major extreme is, predicated negatively concerning the minor extreme.

Quare, Modi quatuor prædicti nihilo penitus indigent quo necessitas conclusionis appareat, præter ea quæ in præmissis posita sunt : et proinde quatuor illi sunt præ cæteris evidentes. Nam cæteri omnes aliquo vel aliquibus egent, quæ, utcunque per præmissas necessaria, in Syllogismo tamen non exprimuntur. Quare illos Aristoteles *perfectos*, hos *imperfectos* dicit ; Scholastici *directos*, et *indirectos* vo-

cant; quia per illos ad conclusionem, velut ad scopum, recta itur; per reliquos eodem perveniri potest, prius tamen alio deflectendum est.

Each of the indirect figures depends on a distinct principle.

The principle of the *second* figure is this: If a quality is universally predicable of any class of things, whatever *does not* possess that quality cannot belong to that class; and if a quality is universally excluded from any class, whatever *does* possess that quality is likewise excluded from that class. Thus if the quality of *making good use of the knowledge acquired* is universally characteristic of *wise men*; and there are *learned men* who do *not* possess the quality of *making good use of their acquired knowledge*; then those *learned men* destitute of that quality must be excluded from the whole class of the *wise*. Hence the argument, *All wise men make good use of the knowledge they have acquired; but some learned men do not so; therefore some learned men are not wise.*

The principle of the *third* figure is this. If two qualities belong to the same class, or the same part of the same class, or the same individual, they *may* co-exist in the same subjects. But if, of two qualities, one belongs to, and the other is excluded from, the same class, or the same part of a class, or the same individual, they are *not universally* co-existent in the same subjects. The former case proves the qualities to be *not always opposed* to each other; the latter proves them to be *sometimes opposed* to each other. Thus, if *responsibility* and *mortality* belong to the species *man*, (as expressed by the premises *All men are responsible; but all men are mortal*,) then it must follow that *some mortal beings are responsible*. Again, if, of the qualities of *virtue*

and *responsibility*, the former is excluded from *some men*, and the latter belongs to the same *some men*, (which must be the case if it belongs to *all men*.) then the quality of *virtue* is separable from that of *responsibility*: that is, if *some men are not virtuous*, and yet *all men are responsible*, it follows that *some responsible beings are not virtuous*.

The principles of the *fourth* figure are these: If a class of things, or a part of a class, is comprehended in another class, and this in a third; then the first class must comprehend some individuals belonging to the third. Again, if one class universally excludes another which is wholly or partially comprehended under a third, the first is partially excluded from the third. And, vice-versâ, if one class is universally comprehended under another, from which a third is wholly excluded, this third is wholly excluded from the first.

These principles, or at least those of the second and third figures, are, perhaps, not less axiomatic than that to which the appeal is made in the first figure. They certainly, however, imply the principle of the first figure; and it is neither uninteresting nor unprofitable to trace how naturally the syllogisms in one figure may be transferred into another, and especially into the first. For instance; the syllogism, *No men are exempt from death; but all angels are; and therefore no angels are men*; is conclusive, on the principle that whatever possesses any quality of which another class is universally destitute, must be excluded from that class. But the proposition, *No men are exempt from death*, necessarily implies that *no beings exempt from death are men*; by which change *men* becomes universally denied of the medium under which, as the minor premiss declares, *angels* are comprehended. Whence the same conclusion is deduced on the principle of the first figure.

*Perfici igitur et revocari atque reduci dici-*

mus indirectos, cum per modum aliquem directum illationis suæ vim demonstrant. Et definitur *Reductio*, imperfecti modi in perfectum mutatio, quo necessitas illationis fiat ex inevidenti evidens. Fiet autem, quando evidenter (h. e. in primâ) ostenditur conclusionem vi præmissarum vel 1. talem esse; vel 2. aliam esse non posse. Unde Reductio est vel *ostensiva* vel *ad impossibile*.

Utriusque praxin pro modis nominatis docent ipsa modorum nomina a scholasticis in hunc finem conficta. Nam in iis tres vocales sunt totidem propositiones syllogismi suâ quantitate et qualitate signatæ. Consonæ initiales B. C. D. F. notant modum primæ, ad quem fit reductio. S. P. propositionem, quam vocalis proxime antecedens designat, esse in reductione convertendam: S simpliciter; P per accidens. M transponendas esse præmissas. K reductionem fieri per impossibile, i. e. pro præmissâ, cujus symbolo adhæret, sumendam esse conclusionis contradictoriam. Quibus ex præscripto factis, colligitur in primâ conclusio vel expositæ eadem, vel eam inferens, vel præmissæ contradictoria, ut in exemplo.

cEs	Nullum	A	est	B
Ar	Omne	C	est	B: <i>Ergo</i>
E	Nullum	C	est	A.

ad

*cE* Nullum B est A  
*lA* Omne C est B: *Ergo*  
*rEnt* Nullum C est A.

*dIs* Aliquod B est A  
*Am* Omne B est C: *Ergo*  
*I* Aliquod C est A.

ad

*dA* Omne B est C  
*rI* Aliquod A est B: *Ergo*  
*I* Aliquod A est C.

*bAr* Omne A est B  
*Ok* Aliquod C non est B: *Ergo*  
*O* Aliquod C non est A.

ad

*bAr* Omne A est B  
*bA* Omne C est A: *Ergo*  
*rA* Omne C est B.

§. 7. *De Reductionis validitate.*

**REDUCTIONIS** ostensivæ validitas sic ostenditur. Ex præmissis reducendi, per conversionem imperatam, necessario colliguntur præmissæ reducti: atque ex iis, per figuram primam, conclusio reducti: quæ vel ipsa con-

clusio reducendi erit, vel per illativam conversionem fiet.

*cEs* The fixed stars do not revolve about a centre ;  
*Ar* The planets revolve about a centre : Therefore,  
*E* The planets are not fixed stars.

To illustrate the correctness of this method of reasoning, the premises may be so arranged or changed for others equivalent to them, as to reduce them into the first figure. This may be effected by the simple conversion of the major premiss, as intimated by the *s* annexed to its symbol. The new premiss, as the initial *c* denotes, will be in *Celarent*: thus,

*Those heavenly bodies which do not revolve about a centre are fixed stars ; All planets revolve about a centre: from which premises the conclusion must be, The planets are not fixed stars.*

*dIs* Some acts of friendship are acts which militate against justice ;  
*Am* All acts of friendship appear virtuous and splendid to the thoughtless : Therefore,  
*Is* Some things which appear virtuous and splendid to the thoughtless militate against justice.

The changes here denoted by *s* attached to the major premiss, and *m*, which denotes the transposition of the premises, produce the following premises in the first figure in *Darii*:

*All acts of friendship appear virtuous and splendid to the thoughtless ; Some acts which militate against justice are acts of friendship: from which new premises, the direct conclusion is, Some acts which militate against justice appear virtuous and splendid to the thoughtless. Of which the original conclusion is the simple converse; as the final s in Disamis intimated. Thus that conclusion and the mode in which it is drawn are shewn to be correct.*

*fEl Polished brass is not gold;*

*Ap Polished brass glitters;*

*iOn Not-all that glitters is gold.*

Here, the letters *l, t, n*, are not symbolic. *P* denotes the conversion *per accidens* of the minor premiss, to the symbol of which it is annexed. This single change reduces the premises into the mode *Ferio*; viz. *Polished brass is not gold; but some things which glitter are polished brass.* And the evident conclusion is the same; *Some things which glitter are not gold.*

*dAr Every modification of pride is sinful;*

*Ap Some modifications of pride are approved and encouraged by the majority of mankind;*

*iI Some things approved and encouraged by the majority of mankind are sinful.*

Thus reduced to *Darii* by the accidental conversion of the minor premiss:

*Every modification of pride is sinful; Some things approved by the majority of mankind are modifications of pride: Therefore some things approved by the majority of mankind are sinful.*

Again,

*cAm The passions are common to brutes;*

*Es The virtues are not common to brutes;*

*trEs The virtues are not passions.*

Thus reduced to *Celarent*:

*No qualities common to brutes are virtues; The passions are qualities common to brutes: Therefore the passions are not virtues.*

Again,

*frEs Reason is not instinct;*

*Is Instinct is a kind of natural sagacity;*

*On Some kind of natural sagacity is not reason.*

Thus reduced to *Ferio*:

*Instinct is not reason; Some kind of natural sagacity is instinct: Therefore some kind of natural sagacity is not reason.*

Again,

brAm *Worldly honours are transient vanities ;*

An *Transient vanities are sources of, certain disappointment : Therefore*

iIp *Some sources of certain disappointment are worldly honours.*

The transposition of the premises produces the following new antecedent, in *Barbara* :

*Transient vanities are sources of certain disappointment ; Worldly honours are transient vanities.* The conclusion from which premises is ; *Worldly honours are sources of certain disappointment :* of which the original conclusion is the converse *per accidens* ; and is therefore inferible from it.

Reductionis per Impossibile validitas sic ostenditur. Quoniam præmissæ ex hypothesi sunt semper veræ, ergo contradictoria præmissæ nunquam vera : ergo contradictoria conclusionis nunquam vera : (nam has simul veras esse demonstratur in *Barbara*) ergo contradictoria conclusionis semper falsa : ergo conclusio ipsa semper vera.

bA *The contented are happy ;*

rOk *Some men are not happy :*

O *Some men are not contented.*

In the stead of the minor premiss, to which the symbol *k* is attached, substitute the contradictory of the conclusion : the new premises will then be, in *Barbara*,

*The contented are happy ;*

*All men are contented :*

whence is deduced the direct conclusion, *All men are happy.*

The original premises are (by hypothesis) true ; therefore their contradictories are false : but the new

conclusion contradicts the original minor premiss : therefore the new conclusion is false. But that conclusion is correctly inferred from the premises in Barbara. Therefore one of the premises is false : this cannot be the major premiss, for it is the same as the original major which has been granted to be true : therefore the minor premiss is false : therefore its contradictory is true : but its contradictory is the original conclusion : therefore the original conclusion is true ; and it is correctly inferred.

*bOk Some legal coins possess no intrinsic value ;*

*Ar All legal coins have an adventitious value :*

*dO Some things which have an adventitious value possess no intrinsic value.*

*All things which have an adventitious value possess also an intrinsic value ;*

*All legal coins have an adventitious value :*

*All legal coins possess an intrinsic value.*

This conclusion is false, for it contradicts the original premiss : therefore the new major premiss is false : therefore its contradictory, which is the original conclusion, is true.

The reduction of *Baroko* and *Bokardo* (which are the only modes in which the reduction *ad impossibile* is directed) may be performed by a different process.

Let the following be a syllogism in *Baroko* :

*Profitable property will produce an income more than sufficient to replace the expenses attendant on it ;*  
*But some coal-mines will not produce such an income :*  
*Therefore some coal-mines are not profitable property.*

By converting the major premiss by *contraposition*, the minor premiss is rendered affirmative, (the negative particle being combined with the predicate,) and the new syllogism is in *Ferio*. Thus : *Whatsoever will not produce an income more than sufficient to replace the expenses attendant on it is not profitable property ; But some coal-mines will not produce such*

*an income: Therefore some coal-mines are not profitable property.*

Again, let the following syllogism in *Bokardo* be given to be reduced:

*Some systems of unjust exaction have not been followed by immediate punishment;*

*All systems of unjust exaction incur guilt: Therefore,*

*Some things which incur guilt have not been followed by immediate punishment.*

By converting the major premiss by *contraposition*, and transposing the premises, a syllogism is formed in *Darii*; thus,

*All systems of unjust exaction incur guilt;*

*Some things which have not been followed by immediate punishment are systems of unjust exaction: Therefore,*

*Some things which have not been followed by immediate punishment incur guilt.*

The conclusion from the original premises is the simple converse of the new conclusion, and consequently inferible from it.

The latter process may be more simply described thus: by combining the negative with the major extreme the syllogism is reduced to *Disamis*, and the reduction to the first figure may be performed according to the directions given for that mode.

#### §. 8. *Figurarum Regulæ speciales.*

**PERSPICUUM** est ex antedictis

I. Syllogismos simplices, certo atque necessario concludentes, fieri 24 modis: 6 in quâlibet figurâ.

II. Et in aliquo istorum modorum probari

posse conclusionem quamlibet de inesse: nempe A uno modo, E quatuor, I septem, O duodecim. Et rursus; in primâ, conclusionem quamcunque: In secundâ, omnes et solas negativas: In tertiâ, omnes et solas particulares: In quartâ, quamlibet præter A. De præmissis denique, quod in primâ et secundâ, major semper universalis est; in primâ et tertiâ, minor affirmativa: In secundâ, præmissarum altera negativa: aliaque ejusmodi; quæ ipsa modorum nomina satis indicant.

An *universal affirmative* conclusion can be deduced only from two universal affirmative premises, in the first figure, in the mode *Barbara*.

*Universal negative* conclusions may be proved by the first figure, in *Celarent*; by the second figure, in *Cesare* and *Camestres*; and by the fourth figure, in *Camenes*.

*Particular affirmative* conclusions may be proved, by fig. 1. in *Darii* and *AAI*.—by fig. 3. in *Darapti*, *Disamis*, and *Datisi*;—by fig. 4. in *Bramantip* and *Dimaris*.

*Particular negative* conclusions may be proved by each of the figures: namely, in *Ferio*, of the first figure; *Festino*, *Baroko*, in the second figure; *Felapton*, *Bokardo*, and *Ferison*, of the third; *Fesapo*, and *Fresison*, of the fourth figure; together with the subalternates of the four modes by which universal negatives are proved.

The following table represents the propositions, according to their quantity and essential quality, which are admissible in each figure.

<i>Fig.</i>	<i>Major Premiss.</i>	<i>Minor Premiss.</i>	<i>Conclusion.</i>
1.	Universal.	Affirmative.	Any.
2.	Universal.*	Any.	Negative.
3.	Any.	Affirmative.	Particular.
4.	Any but O.	Any but O.	Any but A.

\* In the second figure, one of the premises must be negative.

These special rules flow immediately from the general principles, on which (as has been already described) each of the figures depends. The first figure, for instance, consists in the application of a general principle to a subordinate case; or, in inferring a quality to belong or not to belong to something, because it belongs or does not belong to a class in which that thing is comprehended. But no such general principle is advanced unless the major premiss is universal; no such application of it to any thing subordinate can be effected, unless by an affirmative minor.

Again, it has been observed that the second figure proves a disagreement between two classes, or between some one class and a portion of another class or an individual, by shewing that a quality possessed by the one is wholly excluded by the other; or that quality not possessed by the one is universally characteristic of the other. Hence the leading proposition of the antecedent must be universal; one of the premises and the conclusion must be negative.

In like manner the special rules of the other figures may be inferred from the principles already described, (page 150, 151.) But they may also be established by the following technical analysis of each figure.

FIRST FIGURE.

A, E.		MED.....Maj.
A, I.		Min. ....MED.
A, I, E, O.		Min. ....Maj.

Rule 1. *The Minor Premiss must be affirmative.*

For if otherwise, let it be negative: then the major premiss must be affirmative; and the conclusion must be negative. The affirmative major does not distribute the predicate, which must, by the figure, be the major extreme. But the conclusion, being negative, distributes that major extreme. Therefore the process of this extreme is illicit. Therefore the minor premiss must not be negative. Therefore it must be affirmative.

Rule 2. *The Major Premiss of the first figure must be universal.*

For the minor premiss must be affirmative: therefore the medium, which is its predicate, is not distributed. Therefore it must be distributed in the major premiss, in which, by the figure, it is the subject. But universals alone distribute their subject. Therefore the Major Premiss must be universal.

SECOND FIGURE.

A; E.		Maj.....MED.
E, O; A, I;		Min. ....MED.
E; O.		Min. ....Maj.

Rule 1. *One of the premises in the second figure must be negative.*

For the figure requires that the medium be the predicate of both the premises. But if both are affirmative, the medium is not once distributed: for negatives alone distribute the predicate. Therefore one of the premises must be negative.

Rule 2. *The conclusion in the second figure must be negative.* Because one of the premises must be negative.

Rule 3. *The Major Premiss in the second figure must be universal.*

For, the conclusion being negative, the major extreme is distributed. It must therefore be distributed in the major premiss; in which it is the subject. But universals alone distribute the subject: Therefore *the major premiss must be universal.*

### THIRD FIGURE.

A, E, I, O.		MED. .... Maj.
A, I.		MED. .... Min.
I, O.		Min. .... Maj.

Rule 1. *The Minor Premiss must be affirmative.*

For, if it were negative, the major premiss, being affirmative, would not distribute its predicate, which is the major extreme; but the conclusion, being negative, would require the distribution of that extreme. Therefore the process would be incorrect. Therefore *the minor premiss must be affirmative.*

Rule 2. *The Conclusion of the third figure must be particular.*

For the minor premiss, which must be affirmative, does not distribute the predicate, which, by the figure, is the minor extreme. Therefore the minor extreme cannot be distributed in the conclusion. But particulars alone have the subject undistributed. Therefore *the conclusion must be particular.*

### FOURTH FIGURE.

A, E, I.		Maj. .... MED.
A, E, I.		MED. .... Min.
E, I, O.		Min. .... Maj.

Rule 1. *A particular negative premiss is inadmissible.*

1. If the major premiss be particular negative, the major extreme, being its subject, is not distri-

buted. But the conclusion must be *O*, in which that extreme must be distributed. Therefore an illicit process occurs. Therefore the *major premiss may not be particular negative*.

2. If the *minor premiss* be *O*, the middle term, which is the subject, is not distributed. But the major premiss must be *A*. Therefore the medium, which is the predicate, is again undistributed. Therefore *the minor premiss may not be O*.

Rule 2. *An universal affirmative conclusion cannot be proved in the fourth figure.*

For such a conclusion can be deduced only from universal affirmative premises. But the minor extreme is, by the figure, the predicate of its premiss. Therefore it is not distributed. Therefore it cannot be distributed in the conclusion. Therefore *the conclusion cannot be universal affirmative*.

The following table presents at one view the special rules of the figures, with their respective proofs.

<i>Fig.</i>	<i>Rules.</i>	<i>Proofs.</i>
1.	Minor premiss affirmative . . . . . Major universal . . . . .	Else illicit process of the major term. Else medium not distributed.
2.	One premiss negative . . . . . Conclusion negative . . . . . Major universal . . . . .	Else medium not distributed. Because a negative premiss. Else illicit process of major term.
3.	Minor affirmative . . . . . Conclusion particular . . . . .	Else illicit process of major term. Else illicit process of minor term.
4.	Major premiss not O . . . . . Minor premiss not O . . . . . Conclusion not A . . . . .	Else illicit process of major term. Else medium not distributed. Else illicit process of minor term.

An acquaintance with these rules simplifies the method of scrutinizing an argument. The first object in such a scrutiny is to discover the real question, or position to be proved, and to ascertain its logical subject and predicate. The next step is to discover the middle term. When these are accurately ascertained, it will be easy to reject all redundant expressions, to reduce the syllogism to form, and to perceive the figure to which it belongs. The comparison of the syllogism with the rules of that figure will then immediately enable the mind to decide whether the conclusion has a real dependence on the premises, and is legitimately deduced from it. The occasional exercise of thus analyzing a good parliamentary debate, or a judicial speech, would produce a tact and readiness in discerning the force and cogency of an argument, and a perspicuity (free however from the technicality of formal syllogism) in expressing a train of reasoning. The promiscuous syllogisms given at the close of the Appendix will serve as a more simple exercise of the same nature. The subsequent examples exhibit errors against each of these rules.

I. 1. *Self-denying acts of virtue are followed by an inward satisfaction; but the exercise of gratitude is not a self-denying act of virtue; and consequently is not followed by any inward satisfaction.*

2. *Some of the ancient Greeks had confessedly a much higher relish for all the beauties of oratory than the moderns. But among the ancient Greeks are to be reckoned the Lacedæmonians; these therefore had a higher relish than the moderns for the beauties of oratory.*

II. 1, 2. *Whatsoever is better than strength is peculiarly characteristic of man as distinguished from the brute creation: reason, for instance, is peculiarly characteristic of man in that preeminent point of view: reason, therefore, is better than strength.*

3. *Some implements of husbandry are of modern in-*

vention; but ploughs are not of modern invention: therefore some ploughs are not implements of husbandry.

III. 1. *Hope quickens the animal spirits, and conveys encouragement to bear up under great difficulties; yet it does not secure the accomplishment of its object: so that some things which secure the accomplishment of the object of hope neither quicken the animal spirits, nor convey encouragement to sustain difficulties.*

2. *If it cannot be denied that every act of virtue is beneficial to society; and is at the same time an act advantageous to the individual who performs it: must it not follow that whatever act is advantageous to the agent is likewise beneficial to society?*

IV. 1. *There have been men of great eminence who have not had the advantage of a liberal education; but those who have enjoyed that advantage are responsible for the good employment of every talent with which they have been endowed: therefore some of those who are thus responsible have not been men of great eminence.*

2. *All those objects which afford pleasure to the imagination are at once great, and uncommon, and beautiful; for, whatever combines these three qualities seems to enlarge the mind, to gratify curiosity, and to diffuse a delightful satisfaction and interest throughout the soul: and it is evident that whatever produces these effects must afford pleasure to the imagination.*

Atque hinc facile colligitur, inspecto schemate modorum, quali medio probanda sit quæstio omnis de inesse. E. g. Quæstio A probatur in *Barbara*; medio, de quo prædicatum quæstionis universaliter affirmatur, quodque de subjecto quæstionis affirmatur itidem universaliter: et sic de cæteris.

Thus, *I* may be proved, either by a medium wholly comprehended under the predicate and partially comprehending the subject, as in *Darii*: or by a medium representing a class or individual of which both extremes are qualities, as in *Darapti*, *Disamis*, and *Datisi*: or by a medium comprehending the predicate and comprehended by that class of which the subject represents a portion, as in *Bramantip* and *Dimaris*.

Again, to prove *O*, any one of the four principles on which the figures are respectively founded may be employed.

Adverte tamen quod imperite disputantis est afferre modum innominem; ponet enim in præmissis plusquam opus est ad conclusionem. Quare et innomines hactenus sunt incensi; quamvis negari nequeant, sicubi per inscitiam adhibentur.

See the observations on the 12th rule of structure, page 132, 133.

Adverte etiam, quod figura quarta tribus cæteris deterior est; cum aliis de causis, tum ex hoc præsertim, quod medium dicat de majori, hunc de minori, minorem de medio, h. e. medium nugatorie de seipso.

For instance: *All metaphysical enquiries are involved in some degree of obscurity: but all things involved in obscurity are liable to much error: therefore some things liable to error are metaphysical enquiries.* This syllogism predicates the medium involved in obscurity of the major term *metaphysical enquiries*; this is predicated (in the conclusion) of the minor term, *things liable to error*: and this

minor term is predicated (in the minor premiss) of the medium involved in *obscurity*. That is, the class of *things involved in obscurity* is represented to comprehend all *metaphysical enquiries*; the term *metaphysical enquiries* is asserted to comprehend *some things liable to error*; and *some things liable to error* are represented to comprehend *every thing that is involved in obscurity*. Thus it is implied, in a circle, that *things involved in obscurity* comprehend *things involved in obscurity*; which is nugatory.

This figure is indeed useless; and is introduced only for the sake of displaying all the possible modes of syllogistic argument. It is probable that it has seldom, if ever, been employed in the course of real argument; and the mind seems to revolt from every example of it which is adduced even for the purpose of illustration.

The first figure is sometimes made to assume the appearance of the fourth by the transposition of its premises: a transposition which is strongly urged by some as the proper order. Their chief argument however is derived from an inaccurate conception of the nature of the *middle* term. Overlooking its connexion with the extremes, and thus neglecting to advert to the meaning of the word *medium* as bearing reference to its correlates *major* and *minor*, (as illustrated under the first rule of structure, page 117.) they take the word only in a mechanical sense, as implying that it occupies the middle place. They would therefore argue thus:

*A child bearing testimony in its father's cause is an interested witness: but interested witnesses are not admissible in courts of justice: therefore a child bearing testimony in its father's cause is not admissible in courts of justice.*

But such an arrangement is obviously unphilosophical. Whereas the statement in the first place of the broad incontrovertible principle, *Interested witnesses are not admissible in courts of justice*, pre-

pares the mind for an involuntary acquiescence in the subordinate assertion, that *a child bearing testimony in its father's cause (being an interested witness) is not admissible in courts of justice.*

§. 9. *De Enthymemate, &c.*

**SYLLOGISMIS** etiam adnumerantur aliæ argumentorum species; quæ nec stricte loquendo Syllogismi sunt, nec ita tamen peccant, ut propterea mereantur excludi: in quibus scilicet reticetur argumenti pars aliqua, sed quam proclive est cogitatione substituere.

1. *Enthymema*; cujus antecedens constat propositione et judicio; nam judicium est propositio in mente; e. g. *Homo est animal; ergo est vivens.* Dicitur etiam Aristoteli *Syllogismus Oratorius*; et, si integra ejus vis contineatur in unicâ propositione, *sententia Enthymematica*; utrumque Quintiliano *sententia cum ratione*; ut, *Mortalis cum sis, immortale ne geras odium.* Deest illi ad Syllogismum altera præmissarum; utrum vero major an minor, ex quæstione dignoscitur.

In an *enthymem*, the conclusion is drawn from two premises of which only one is expressed. It is, as to form, a defective syllogism, in which the writer or speaker relies on the common sense of his reader or hearer to supply the suppressed premises. Hence it is said that the antecedent consists of a

proposition and a judgment: that is, of an expressed and an implied sentence.

Every *enthymem* contains the three terms of the syllogism which it represents. One of these terms (namely, one of the extremes of the question) occurs twice; the medium and the other extreme are each expressed but once. The suppressed premise is to be supplied by comparing with the medium that extreme which occurs only once.

For example: *The human soul is immaterial; consequently it is immortal.* Here the conclusion is, *The human soul is immortal.* The minor extreme is, *the human soul*; which term also occurs in the expressed premiss, *The human soul is immaterial.* This is therefore the minor premiss. And it compares its extreme with the medium *immaterial.* The major extreme is *immortal*; and the suppressed proposition is *Every thing immaterial is immortal.* The complete syllogism therefore is in *Barbara*; namely, *Every thing immaterial is immortal; but the human soul is immaterial; therefore the human soul is immortal.*

It is most frequent, in enthymems, to express the minor premiss; since that is usually more liable than the major to be called in question. The latter is generally a proposition of a more general nature, and therefore better known, and less exposed to contradiction or doubt.

If however it happens that the minor premiss is very obvious; or if it is desirable to give a particular prominence and emphasis to the major premiss, the former is suppressed. For example: *During the late war it happened (for it is the effect of every war to throw capital into new channels) that various profitable branches of commerce were carried to a great extent: that is, Every war occasions an extensive transfer of capital into various new and profitable channels; But the late war was a war; Therefore the late war occasioned an extensive transfer of*

capital into various new and profitable channels. The minor premiss, though essential to the argument, is a mere truism, which would appear futile in a formal statement.

*We enjoy a greater degree of political liberty than any civilized people on earth, and can therefore have no excuse for a seditious disposition.* The major premiss is here understood; which may be either, *None who have any excuse for a seditious disposition enjoy a greater degree of political liberty than any civilized nation on earth;* or more naturally, *Those who enjoy a greater degree of political liberty than any other civilized people on earth, have no excuse for a seditious disposition.*

*Ridicule is a dangerous weapon; for such, in fact, is every talent by which a man stirs up a secret enmity against himself.* The suppressed premiss is the minor; *Ridicule is a talent by which a man stirs up a secret enmity against himself.*

*The power of ridicule is a dangerous faculty; since it tempts its possessor to find fault unjustly, and to distress some for the gratification of others.* This sentence comprehends two enthymems; for there are two middle terms. And the major premisses respectively implied in each are, *That which tempts its possessor to find fault unjustly is a dangerous faculty;* and, *That which induces its possessor to distress some for the gratification of others is a dangerous faculty.*

An enthymem in its usual form is a complex causal sentence. But its force is sometimes concentrated into one simple grammatical sentence. This is denominated an *enthymematic sentence*. Thus Nehemiah's question, *Should such a man as I flee?* involves the following argument: *They who are raised up by Divine Providence to accomplish a great and beneficial undertaking, should not be ready to flee from the appearance of danger: but such am I; I ought not therefore to flee.*

Again, the query of the unbelieving Pharisees was an enthymematic sentence: *How can a man that is a sinner do such miracles?* The following syllogism represents the train of thought which suggested that question: *Sinners are not endued from above with the power of working miracles: this man is a sinner: therefore he is not endued with the power of working miracles.* Their minor premiss was false; and therefore, (the consequence, or connexion of the conclusion with the antecedent, being correct,) their inference was also false.

The argument from the frailty of human nature is very frequently thus implied in the poets, and other writers. For instance; Περὶ αὐτοῦ οὐδὲν ἀνθρώπου χεῖρον. (Soph.) that is, ἀνθρώπου ἄντα, or εἴτις ἀνθρώπος ἔστι. Again, Ἐγὼ, ὦ ἄνδρες, ἀνθρώπος ὢν ἴδομαι μὲν ὑπὸ ὑμῶν τιμώμενος. (Xen.) Σὺ οὐκ οἶδας, ἀνθρώπου ἴσιν, καὶ χεῖρ τὸ βέλαιον. (Herod.)

The following are examples of enthymems and enthymematic sentences.

*Real learning is too valuable a thing to be within the grasp of the idle.*

*I ask your lordships, whether parliament will be in a state to transact public business, or be attended by a sufficient number of members, while engaged in preparing for a public election.*

*The meanest individual may apply to the law for his defence; for actual safety and the full assurance of safety are alike the right of all: that is, All have a right to that safety and assurance of safety which the law provides: and therefore the meanest individual has that right. (Or thus, That which is the right of all is the right of the meanest; but the safety which the law provides is the right of all; therefore, &c.*

*Popular commotions, though commencing on a small scale, are so liable to ripen into systematic sedition, that they ought to be speedily and decisively checked.*

*Popular commotions, however small the scale on which they begin, ought to be speedily and decisively*

*checked, on account of their great liability to ripen into systematic sedition.*

*That which, if left to its own course, though proceeding from circumstances apparently unimportant, has a tendency to advance to systematic sedition, (and this is undoubtedly the nature of all popular commotions, however insignificant in their origin,) calls for a speedy and decisive check.*

2. *Inductio* ; in quâ ponitur quantum opus est de singulis, et deinde assumitur de universis ; ut, *Hic et ille et iste magnes trahit ferrum ; ergo omnis*. Est igitur Enthymema quoddam ; nempe Syllogismus in Barbara, cujus minor reticetur.

*Induction* is the derivation of general propositions from singular objects, and from those general propositions others still more general, and so on, till the mind arrives at the most general propositions, which, both on account of their priority in the order of nature, and of their use in syllogistic reasoning, are called *principles*.

It has been before observed, that syllogistic reasoning is founded on certain general principles, and that its appropriate office is to reduce those principles to that particular application which renders them practically useful in scientific pursuits, and in the direction of conduct in common life. A natural enquiry therefore suggests itself : whence are these principles derived ? Many of them may indeed be syllogistically traced back to principles more general ; and these again to others of a still more general nature. But sooner or later the mind is checked in this career. It arrives at principles in which indeed it cannot but acquiesce ; but the truth of which it cannot syllogistically demonstrate

Of these principles, some rest solely on *testimony* or *authority*. Thus the majority of mankind implicitly receive their religious and philosophical tenets from their immediate ancestors, as these also did from theirs; and thus error is perpetuated. So also a student may suppose himself to be following the dictates of his own mind, while he is really influenced by esteem for the judgment of the author whom he studies, or of the instructor to whose guidance he intrusts himself. But the only general principles which ought to rest on external testimony, are those of religious doctrine and obligation, which depend on the immediate authority of Him who cannot deceive or be deceived. Human testimony, strictly speaking, is to be received only in relation to individual facts: not for the establishment of general principles.

The principles acquired by human powers may be considered as twofold. Some are *intuitive*, and are commonly called *axioms*; their extreme universality entitling them to a certain *ἀξίωμα*, dignity, above all propositions of a less comprehensive nature. Such are the mathematical axioms; *The whole is greater than any of its parts. Things equal to the same are equal to each other. Magnitudes which coincide with each other are equal to one another.*

The other class of general principles are those acquired by *Induction*; which are sometimes called *secondary axioms* or *principles*, sometimes *laws*, sometimes (*ἰδέα*) *forms*.

But it may be doubted whether this distinction is correct. It is highly probable, if not certain, that those primary axioms generally esteemed intuitive, are also acquired by an inductive process: although that process is less discernible, because it takes place long before we think of tracing the actings of our own minds. It is certain that it is often found necessary to facilitate the understand-

ing of those axioms, when they are first proposed to the judgment, by illustrations taken from individual cases. But whether it is, as is generally supposed, the mere *enunciation* of the principle, or the *principle* itself, which requires the illustration, may admit of a doubt. It seems probable, however, that such illustrations are nothing more than a recurrence to the original method by which the knowledge of those principles was acquired. Thus the repeated trial or observation of the necessary connexion between mathematical coincidence and equality first authorizes the general position or axiom relative to that subject. If this conjecture is founded in fact, it follows that both *primary* and *ultimate* principles have the same nature, and are alike acquired by the exercise of the inductive faculty.

Induction bears some analogy to *abstraction*. Both of them commence with individuals, and proceed, by successive comparisons, from these to generals, and from those things which are less general to those which are more general. But there is this essential difference between them; *Abstraction* is simply an instrument of classification, and relates to the formation and arrangement of notions: whereas *Induction* is an instrument adapted to the discovery of facts and principles previously unknown. In proportion, however, as our operations of abstraction are more correct, scientific, and complete, they approach more nearly to the nature of induction.

An induction in which every individual case is enumerated is a perfect demonstration. And in general, the more nearly we approach to the entire enumeration, the higher is the degree of probability attained by the induction: provided, at least, that facts of an opposite tendency are not discoverable, or if they should occur, are satisfactorily shewn not to be *really* inconsistent with the principle deduced.

The great error in induction is too great haste in drawing a conclusion without having premised a sufficient number of individual cases. Thus many, if they have met with or heard of *one or two dishonest lawyers*, or observed *a comet in a warm summer*, think themselves authorized to draw the sweeping inference, that *all lawyers are dishonest*, or *all comets occasion a warm season*. So, because the earth is watered by rain from the clouds in England, France, Spain, Italy, and every other part of Europe; and the same is found to be the case in the various parts of Asia, Africa, and America, concerning which we may have made enquiry, it might be erroneously inferred that *every part of the earth is so watered*. Thus also, the medicine of an empiric is supported by a published induction of the many cures effected by it; which succeeds in deluding those who forget to consider how many cases are not published: the majority of which, it may be not unreasonable to suspect, were failures. Correct induction requires much patience, caution, and diligent investigation.

*Moral Induction*, or *observation* of the motives and effects of human conduct, the influence of education, association, and other circumstances, is the foundation of the moral and political axioms (with the exception of those exclusively derived from divine authority) to which we habitually appeal for the regulation of our conduct in regard to ourselves or society in every new train of circumstances. The man of observation acquires from his historical knowledge, and from the facts which have successively presented themselves to his notice, when judiciously examined and compared with each other, a fund of axioms which he learns to apply syllogistically to any particular case, in relation either to the government of a state, the direction and instruction of others, or the regulation of his own conduct. Such a man is called *prudent*, and is said to possess a knowledge of human nature.

Moral proverbs are, or profess to be, the results of this kind of induction. The Proverbs of Solomon, though they also rest on the higher and indubitable foundation of inspiration, are general axioms, the result of the observations and comparisons of the wisest of men.

Aristotle adopts the inductive form, when he enumerates all the virtues; (viz. fortitude, temperance, liberality, magnificence, magnanimity, lenity, friendliness, veracity, politeness, modesty, and justice;) and after having shewn that each of them consists in a medium, infers, *Μετρίτης ἔστι τὰς ἀρετὰς πιστεύσασθαι*, ἐπὶ πάντων οὕτως ἔχει συνιδοῦντες. (Eth. Nic. iv. 7.)

The inductive form is ironically employed by Socrates to expose the absurdity of his accuser:

(Σωκράτης.) Εἰπέ, ὦ ἀγαθὲ, τίς τοὺς νέους ἀμείνους ποιεῖ;

(Μελίτις.) Οὗτοι, ὦ Σώκρατες, οἱ δικάσαι.

(Σωκρ.) Πότερον ἅπαντες;

(Μελ.) Ἄπαντες.

(Σωκρ.) Τί δι' δὴ; οἷός τι οἱ ἀρεσάται βελτίους ποιοῦσιν, ἢ οὐ;

(Μελ.) Καὶ οὗτοι.

(Σωκρ.) Τί δι' οἱ βουλευταί;

(Μελ.) Καὶ οἱ βουλευταί.

(Σωκρ.) Ἄλλ' ἄρα, ὦ Μέλιτι, μὴ οἱ ἐν τῇ ἐκκλησίᾳ ἐκκλησιασάαι διαφθείρουσι τοὺς νεώτερους; ἢ καὶ οὗτοι βελτίους ποιοῦσιν ἅπαντες;

(Μελ.) Καὶ οὗτοι.

(Σωκρ.) Πάντες ἄρα, ὡς ἔοικεν, Ἀθηναῖοι καλοὺς καγαθεὺς ποιοῦσι, πλὴν ἐμοῦ.

Plato Apol. Socr. §. 12.

The following extract affords another instance of inductive reasoning of the moral kind.

*It is evident that paganism must have originated in a wilful departure from the truth. For when we consider, that man was not from the beginning left to himself to discover the true Author of nature, or the worship that was due to him; but was instructed by immediate*

*communication from his Creator in every thing relative to his spiritual concerns : how can we regard the introduction of false divinities in any other light than that of wilful apostacy from the true God? Ignorance could not be the cause of Cain's departure from the faith ; nor of the infidelity of his immediate descendants ; neither could it be pleaded in excuse for the children of Seth, (emphatically called " the sons of God,") when they forfeited their claim to that title, by entering into alliance with the wicked posterity of Cain. The same is to be observed respecting the immediate descendants of Noah, whom we cannot suppose to have been ignorant of the true religion founded on the expectation of the promised Redeemer, notwithstanding their readiness, so soon after the flood, to renounce that expectation, and to follow their own corrupt imaginations.*

This is a perfect induction ; for it enumerates all the individuals in whom idolatry could possibly have originated : since by others it has been adopted from imitation only.

A beautiful specimen of moral induction occurs 2 Peter ii. 4—9. The conclusion is twofold ; and the sacred writer accordingly adduces a double train of individual instances, strikingly contrasted with each other. The substance of the arguments is this : *The offending angels,—the antediluvian world,—the inhabitants of Sodom and Gomorrah,—were divinely punished ; therefore, all the unjust shall be divinely punished. Again, The holy angels who did not offend,—Noah, the preacher of righteousness,—and just Lot,—were delivered from trial ; therefore all the godly shall be delivered from trial.*

The three introductory chapters of the Epistle to the Romans contain an inductive argument ; in which the proposition, *All have sinned*, is inferred from the same being distinctly proved, concerning both Jews and Gentiles.

Again, the general conclusion in Psalm xxxvii.

23, as deduced from the train of observation mentioned in the subsequent verse;—and that in the 38th verse, as deduced from verses 35, 36, are specimens of moral induction.

In *Metaphysical Induction* a great degree of obscurity necessarily prevails. In that branch of metaphysics, for instance, which relates to the powers and operations of the mind, the student has, primarily, but one subject on which he is able to make his observations; namely, his own mind. By habitual reflection, however, he may watch and scrutinize its operations under the influence of a variety of different circumstances. And he may infer, with a high degree of probability, that the process which he discovers to take place in his own mind, bears a great similarity to that which occurs in the minds of men in general. Yet he is continually liable to be misled in consequence of an inability to distinguish between those operations which are purely natural and common to all who are possessed of mind, and those which are adventitious, the result of early habits and associations formed long before he had entered on his philosophical speculations.

Next to his own experience, the metaphysician is enabled to improve his acquaintance with the human mind by tracing its operations in those about him. Here he has a wide scope. He learns something from the old and young, the rich and poor, the learned and unlearned, the poet and the philosopher. Yet here also he lies under a great disadvantage; he can only conjecture what passes in the mind of others, by the means of the expressions, the conduct, the countenance, and other external circumstances, which are but imperfect and often inaccurate indices of the real operations of the mind.

The recorded sentiments of other metaphysical students afford a third, and perhaps the most exceptionable help to this species of induction. These

should be received with suspicion ; for every writer of talent is able so to trace out his opinions on this subject, that the mind of the student is involuntarily borne along ; and is made to feel as if its own previous and natural mode of operation were described by the writer, while in fact it does no more than follow the line which is, as it were, arbitrarily marked out for it.

These circumstances retard the progress of this branch of metaphysical science, so that it still continues and probably will long continue to be in a state of much imperfection.

*Physical Induction* consists in the right use of observation and experiment in regard to external objects ; and the deduction of correct inferences from them. The most simple process of physical induction is to watch the unbiassed operations of nature. But the results derived from such observation most frequently require to be confirmed by experiments ; by which nature is (if we may so speak) compelled to perform her operations under those circumstances and limitations which man sees fit to prescribe. This is usually a long and laborious process ; but it is necessary for the investigation of truth. The operations of nature are sometimes too magnificent and extensive for the grasp of our contracted senses ; but experiments reduce these operations, as it were, to a miniature form, so as to enable the philosopher to trace at one view their nature, causes, and consequences. They are at other times too subtle, too rapid, or too secret to be observed : they require therefore to be educed by particular experiments, and thus subjected to the scrutiny of the senses.

Thus the geologist follows nature by a protracted and laborious research, wherever he may have opportunities of witnessing the interior formation of the earth, or of receiving facts concerning it from others. On the other hand the philosophical cho-

mist makes nature display itself in his laboratory by repeated experiments.

By means of observation and experiment the natural philosopher at first does no more than make an historical record (either mentally or actually) of the facts or phenomena which have come to his knowledge: he then endeavours to classify those facts; to contrast them with all such facts as appear to be of an opposite nature; and by dividing and separating essentials from non-essentials, things necessary from things contingent, he determines and distinguishes in every object the nature from its properties and accidents: he traces phenomena to their physical causes or antecedents; divests them of those similarities or differences which are merely apparent; classifies them according to their real relations to each other; and thus discovers those general principles or laws according to which all things are regulated, and the knowledge of which constitutes true science.

For example; the practical miner, on the discovery of a *pebbly red sand-stone*, will probably assert without hesitation that *coal* may be found within a moderate depth from the surface. His induction is however incomplete; he is biassed by localities, and judges without any scientific acquaintance with the structure of the earth. The attempt may be made, and the expectations of the proprietor disappointed. This fact presents an apparent opposition to the general principle that *red sand-stone on the surface indicates coal beneath*. But the philosopher, by more extensive examination, discovers that there is also *another stratum of pebbly red sand-stone*, subjacent to the *coal strata*, bearing a very great similarity to the former. By repeated examinations however he discovers certain uniform marks of distinction between the *superincumbent* and the *subjacent* stratum. This discovery at once produces an important step in the advancement of the science,

and may rescue many from the toil, expense, and disappointment of seeking coal beneath a stratum to which it must necessarily be superior.

It is thus, also, that the utility of *vaccination* has been established. It was not sufficient that a vast mass of individual instances of *successful vaccination* should be adduced; every search and enquiry has been made to discover *failures*. These have been accurately recorded, and diligently examined. Many were found to be merely idle reports. Others proved to be instances of real failure. The circumstances attending these cases have, as far as was practicable, been scrutinized. The proportion of failures to the successful cases has been ascertained to an astonishing degree of precision; and the beneficial effects of the practice have by this process been far more undeniably and satisfactorily established, than they would have been by any vague assertions of its universal and unerring efficacy.

To attempt, however, a full illustration of the process of physical induction would be to explain the science, or at least the branch of science, from which the illustration should be borrowed. The history of the discovery of the circulation of the blood; of gravitation; of the laws of light and motion; of the modern improvements in chemical, geological, and agricultural science, which may be found in particular treatises, or in a good Encyclopædia, will best serve to illustrate its nature.

Those who acquiesce in the preceding observations will feel a regret to find *Induction* classed among defective or informal syllogisms. It is in fact prior in its order to syllogism: nor can syllogistic reasoning be carried on to any extent without previous induction.

Yet this acknowledged dignity and value of induction has no tendency to degrade the syllogistic system. It affords no sufficient reason either for the omission of this branch of logic, or for the uni-

versal study of the inductive system. For though, theoretically, as before observed, no human testimony will authorize our admission of general principles; yet in fact the greater part of mankind must rely on testimony. We are compelled to act on the principle, (however incorrect it is in theory,) *cuique in sua arte credendum*. Few are competent to repeat the inductive process of a Harvey, a Galileo, or a Newton; or to follow a modern geologist in his researches over almost every part of the globe. Few are able even to peruse the history of the phenomena and experiments they have recorded, and thus, taking their facts only for granted, to make the conclusions their own. The majority, even of literary and scientific men, must be contented, on most subjects, with a superficial knowledge; that is, with taking upon trust the general results, without any acquaintance with the train of observation and discovery on which they were originally founded. And the case is similar in respect to moral induction. Our own opportunities of observation are limited; we must continually rely, in practice, on the counsels and opinions of others on subjects of moral and political expediency.

And this necessity appears to be the true reason why the syllogistic system should be first and most generally understood. For while few have opportunities or powers to carry on an inductive process beyond the simple observation of those things which present themselves unsought to their notice, all have daily occasion to use that kind of reasoning which depends on syllogistic principles. No steps in common life can be taken without it. It is convenient indeed, if practicable, to obtain an acquaintance with the process by which general principles are acquired; as it is an advantage to the manufacturer to understand the nature and construction of his machinery. Yet if his machinery should be beyond his comprehension, he still finds by expe-

rience its utility, and carries on his work. To abolish or to lay aside the use of syllogism, for the sake of devoting every power to the advancement of inductive knowledge, would be not less absurd than if our manufacturers should cease from their beneficial occupations until they should succeed in bringing mechanism to the highest pitch of perfection.

3. *Exemplum*; (Aristoteli *Inductio Oratoriâ*;) ubi quod ponitur de singulari noto, assumitur de simili ignoto: ut, *Sylla et Marius laceravere rempublicam*; ergo *Cæsar et Pompeius lacerabunt*. Hujus etiam minor reticetur; quapropter (ut in cæteris) quæstionem *assumi* dico; neque enim *colligitur* nisi ex posito et subintellecto.

*Example* differs from *Induction* chiefly in these two respects:

1. As to the *antecedent*; which in *Induction* must consist of the enumeration of *many* singular facts; whereas *Example* does not require more than *one*.

2. As to the *conclusion*; which in *Induction* is, either strictly or morally, *universal*; but in *Example* is *singular*.

*Hannibali imperatori parem consulem nominare decet. Hoc anno ad Capuam Jubellio Tauræ Campano summo equiti provocanti summus Romanus eques Asellus Claudius est oppositus. Adversus Gallum, quondam provocantem in ponte Anienis, T. Manlium, fidentem et animo et viribus, misere majores nostri. Ob eandem causam haud multis annis post fuisse non negaverim, cur M. Valerio non diffideretur, adversus similiter provocantem arma capienti Gallum ad certamen. Quemadmodum pedites equitesque optamus, ut validiores, si minus, ut pares hosti habeamus; ita duci*

*hostium parem imperatorem quæramus. (Liv. ex Fabii oratione: xxiv. 8.)*

*In minore te experti, Otacili, re sumus. Haud sane, cur ad majora tibi fidamus, documenti quidquam dedisti. . . . Si te classem obtinente, etiam, velut pacato mari, quælibet Hannibali tuta atque integra ab domo venerunt; si ora Italiæ infestior hoc anno, quam Africæ, fuit; quid dicere potes, cur te potissimum duces Hannibali hosti opponat? (Liv. ib.)*

Artabanus employs this kind of argument to dissuade Xerxes from his intended invasion of Greece. Ἐγὼ Δαριῶν ἠγόρευον μὴ στρατεύσθαι ἐπὶ Σκύθας, . . . ἵ δι' στρατεύσάμενος, πολλοὺς τε καὶ ἀγαθοὺς τῆς στρατῆς ἀποβαλὼν ἀπῆλθε. Σὺ δὲ, ὁ βασιλεῦ, μέλλεις ἐπ' ἀνδρας στρατεύσθαι πολλοὺς ἐπὶ ἀμείνωνας ἢ Σκύθας. (Herod. vii. 10.) Two or three other instances of this kind occur in the same speech. So likewise on the same subject he thus appeals to *Example*; (§. 18.) Ἐπιστάμαι ὡς καὶ οὖν εἴη τὸ πολλῶν ἐπιθυμῶν μιμημένος μὲν τὸν ἐπὶ Μασσαγέτας Κύρου τέλει ὡς ἔπραξε, μιμημένος δὲ καὶ τὸν ἐπ' Αἰθίοπας τοῦ Καμβύσιου, συστρατεύομενος δὲ καὶ Δαριῶν ἐπὶ Σκύθας.

A correct and forcible instance of this mode of argument by analogy occurs in 1 Samuel xvii. 34—37. Another in Acts v. 36—39. The speech of Rabshakeh, recorded in Isaiah xxxvi. 18, 19, 20. presents a fallacious instance of the same. The conclusion in this case is not drawn *de simili*; there was no comparison between the omnipotent God of Israel and the idol-gods of the heathen.

This species of argument produces only a low degree of moral probability. It comprehends also *similes*, and even *fables*. Thus the latter part of the first illustration from Livy (*Quemadmodum pedites, &c.*) is an *Example*; though of an inferior order to those contained in the preceding portion of that sentence.

4. *Sorites* ; in cujus Antecedente, ex ordinatâ serie terminorum, præcedens quisque subjicitur sequenti, donec a subjecto quæstionis pervenitur ad prædicatum, v. g. *Homo est animal : animal est vivens : vivens est substantia ; ergo Homo est substantia*. In Sorite igitur subaudiuntur Syllogismi quot sunt intermediæ propositiones ; (vel si mavis, quot in antecedente termini intermedii ;) unde et a cumulo nomen habet.

In the following Epicurean Sorites, though some of the premises, and consequently the conclusion also, are false, the argument is formally correct. *Quoniam deos beatissimos esse constat ; beatus autem esse sine virtute nemo potest ; nec virtus sine ratione constare ; nec ratio usquam inesse nisi in hominis figura ; hominis esse specie deos confitendum est*. (Cic. de Nat. Deor. i. §. 18.)

The intermediate terms of the antecedent, and the intermediate propositions of the whole argument, are three. Consequently this Sorites is no more than a condensed expression of three categorical syllogisms : which might be thus displayed at length.

1. *Whatever is endued with reason bears the human form ; Every virtuous being is endued with reason ; Therefore, every virtuous being bears the human form.*

2. *Every virtuous being bears the human form ; Whatever is happy is virtuous ; Therefore, whatever is happy bears the human form.*

3. *Whatever is happy bears the human form ; The gods are happy ; Therefore, the gods bear the human form.*

The proposition last in order in the antecedent of the Sorites is the major premiss of the first syllogism; and the proposition immediately preceding the last, is its minor premiss. The conclusion of the first syllogism constitutes a second major premiss, to which the last proposition but two, of the Sorites, affords a minor premiss:—and so on, till all the propositions of the Sorites are exhausted. The first proposition becomes the minor premiss of the last syllogism, the conclusion of which is the general inference of the Sorites.

The inspired author of the Epistle to the Romans employs this mode of argument more than once. The Sorites in chap. viii. 29, 30, when reduced to form, and expressed in the most concise manner, will appear thus.

*All the foreknown are predestinated: All the predestinated are called: All the called are justified: All the justified are glorified: Therefore, All the foreknown are glorified.*

Οὐκ ἂν, μὴ εὐσεβὲς ἀλλαγῆς, κοινοῖα ἦν· οὐτ' ἀλλαγὴ, ἰσότης μὴ εὐσεβὲς· οὐτ' ἰσότης, μὴ εὐσεβὲς συμμέτρειας. (Arist. Eth. Nic. v. 5.) That is;

*The preservation of society requires exchange; Whatever requires exchange requires equitable valuation of property; Whatever requires equitable valuation of property requires the adoption of common measure: Therefore, the preservation of society requires the adoption of a common measure.*

The third and second propositions of this Sorites afford premisses in Barbara, which prove the conclusion, *Whatever requires exchange, requires the adoption of a common measure.* And this conclusion with the first proposition in the Sorites constitutes another antecedent in Barbara, whence is deduced the conclusion above drawn, viz. *The preservation of society requires the adoption of a common measure.*

*Syllogismus ex propositionibus constat, propositiones ex verbis, verba notionum tesserae sunt. Itaque si*

*notiones ipsæ (id quod basis rei sunt) confusæ sint et temere a rebus abstractæ, nihil in iis quæ superstruuntur est firmitudinis. (Bac. Org. 14.)* That is; *Syllogisms are composed of propositions; whatever is composed of propositions is composed of the constituent parts of propositions, namely, words; that which is composed of words is composed of the symbols of notions; that which is composed of the symbols of notions is composed of the symbols of things confused, and rashly abstracted; whatsoever things are composed of such symbols must themselves be weak and unsound; therefore syllogisms are weak and unsound.* This argument is therefore a natural compression of four syllogisms in *Barbara*.

The two following rules are rendered obvious by the preceding analysis of the nature of a Sorites.

1. Its antecedent admits of no *negative* proposition except the *last*. For all the other propositions become successively minor premises in the first figure, and must therefore be affirmative.

2. Its antecedent admits of no *particular* proposition except the *first*. For the last premiss is the major of a syllogism in the first figure; and the intermediate propositions are premises to universal conclusions; since each of their conclusions must be such as will likewise serve for a major premiss in the first figure.

5. Soriti affinis est Syllogismus, cujus præmissarum altera est sententia Enthymematica; ut, *Nullus injustus est amandus: Omnis Tyrannus (crudelis cum sit) est injustus; ergo Nullus Tyrannus est amandus.* Qui quidem Syllogismus peculiare nomen non habet; præmissæ autem Enthymematicæ antecedens, Aristoteli *Prosyllogismus* est.

The *Prosylogism* is an appended proposition which is incidentally introduced to confirm one of the premisses of the main argument. It forms the premiss of a distinct enthymem, of which the proposition to which it is adjoined is the conclusion. The syllogism thus combined with its prosylogism is called an *Epichirema*.

The plan of Cicero's oration in defence of Milo is frequently adduced as a good instance of this mode of reasoning. It is to this effect: *He who attempts to assassinate another, may be justly killed by the object of his murderous intentions; (for the laws of nature and of nations, and the conduct of good men, prove it lawful:)* But Clodius attempted to assassinate another; (for he formed an ambuscade against him, and provided himself with armed soldiers:.) Therefore Clodius was justly killed by the object of his murderous intentions.

Ἀμφιόται δὲ ἡ πολιτικὴ ἀνδρεία μάλιστα τῇ ἀληθείᾳ, ὅτι δι' ἀρετὴν γίνεται· δι' αἰδῶ γάρ, καὶ διὰ καλοῦ ὀρεξίῃ, (τιμῆς γάρ,) καὶ φυγὴν ἐνέδους, αἰσχροῦ ὄντος. (Arist. Eth. Nic. iii. 8.) This sentence contains a complex *epichirema*, comprehending three leading *prosylogisms*, together with two others, subordinate to the former. The main argument consists of the enthymem, *Political fortitude is produced by virtue, and therefore bears most similarity to the genuine fortitude*. To the expressed premiss, which is the minor, these *prosylogisms* or *enthymematic proofs* are adjoined; δι' αἰδῶ γάρ, διὰ καλοῦ ὀρεξίῃ, διὰ φυγὴν ἐνέδους. To the second of these is added a subordinate proof or *prosylogism*, τιμῆς γάρ; and to the third, another subordinate *prosylogism*, αἰσχροῦ ὄντος.

The following is an *epichirema*, or an enthymem confirmed by a *prosylogism*. *Syllogismus ad principia scientiarum non adhibetur, ad media axiomata frustra adhibetur, (cum sit subtilitati naturæ longe impar:.) assensum itaque constringit, non res.* (Bacon. Org. i. 13.)

It is not unusual to substitute the *prosyllogism* for the premiss of which it is the proof. For instance; *Whoever worships any created thing is guilty of idolatry; the consecrated wafer is a created thing; whoever therefore worships the consecrated wafer is guilty of idolatry.* In this syllogism, that which occupies the place of the minor premiss is a prosyllogism; and the true minor, to which it should be appended, is suppressed. The complete argument would present the following epichirema: *Whoever worships a created thing is guilty of idolatry; But whoever worships the consecrated wafer worships a created thing, (for that wafer is a created thing;)* *Therefore whoever worships it is guilty of idolatry.*

A similar abridgment takes place in the Sorites above given; in which three prosyllogisms supply the place of their respective premises. When these are expressed the argument will appear thus: *Syllogismus ex propositionibus constat; Quod ex propositionibus constat ex verbis constat, (nam propositiones ex verbis constat;)* *quod e verbis constat e notionum tesseris constat; (verba enim notionum tesseræ sunt;)* *quod e notionum tesseris constat e rebus confusis constat, (notiones enim confusæ sunt;)* *quod e rebus confusis constat nihil habet firmitudinis; ergo Syllogismus nihil habet firmitudinis.*

There is also another mode of condensing a train of reasoning, which is nearly allied to the Sorites: when, in cases in which the inference is extremely obvious, two or more syllogisms are reduced to the form of one. For instance;

*The stars are creatures; therefore the worshippers of the stars worship creatures.*

*A proposition is a combination of words; therefore whatever is composed of propositions is composed of combinations of words.*

*Heretics are men; whoever therefore kills a heretic is a murderer.*

Such arguments consist simply in an appeal to

the general principle, *That which is relative to an individual or species, bears the same relation to a part of any class or predicable which comprehends that individual or species.* And they might be formally deduced from this principle by a series of syllogisms. The process, however, would be as needless and as harsh as it would be for a public reader to enumerate all the syllables and letters over which his eye passes. And in both cases the mind becomes from habit almost unconscious of its own operations.

6. Huc denique revocandum est compendium illud disputandi opponentibus usitatissimum, reticendi scilicet conclusionem; cum sit ipsa quæstio, quam respondens non supponitur ignorare.

This practice of not making a precise statement of the conclusion at the close of every argument, is not confined to *opponents* in formal disputations; but is the natural habit of all who are discussing a subject in private conversation, in public deliberations, or in argumentative compositions. To act otherwise would be idle and tautologous.

A few examples (correct and incorrect) of all these modes of reasoning will be found at the close of the Appendix.

## CAP. VI.

## DE SYLLOGISMIS HYPOTHETICIS.

§. 1. *De Syllogismis Conditionalibus.*

**SYLLOGISMUS** *Hypotheticus* est in quo una, duæ, vel tres propositiones hypotheticæ. v. g. *Si sapit, est beatus : Sapit ; ergo est beatus.* Vel, *Qui sapit est beatus : Si est Philosophus, sapit ; ergo Si est Philosophus, est beatus.* Vel, *Si sapit, est beatus : Si est Philosophus, sapit ; ergo Si est Philosophus, est beatus.* Nos de eo tantum loqui instituímus qui est cæteris usitatio, in quo nempe Major Hypothetica.

*Propositio Hypothetica late sumta* definitur, Plures Categoriæ per conjunctionem aliquam unitæ; et conjunctio vocatur *Copula*; estque *Conditionalis, Disjunctiva, Causalis* &c. ut apud Grammaticos; unde totidem Hypotheticarum species, suis copulis cognomines. Sed ad Syllogismum non faciunt, præter *Conditionalem*, et *Disjunctivam*; quarum exempla, *Si sapit est beatus. Vel dies est vel nox.*

*Man appears mean and worthless now, [but] a nobler state is in reserve for him.*

*The understanding sometimes rests on testimony, when testimony of right has nothing to do, [because] it is easier to believe than to be scientifically instructed.*

*The thing under proof is not capable of demonstration, [and therefore] must be submitted to the trial of probabilities.*

*[If] a man has for haste skipped over what he should have examined, he must begin and go over all again, [or else] he will never come to knowledge.*

*The light of knowledge is pure and bright, [unless] it be perverted and polluted by wickedness or imperfect instruction.*

These sentences are all, in the more vague application of the word, *hypothetical propositions*; namely, either conditional, disjunctive, causal, or illative. Other kinds might be added, according to the relation denoted by the connecting particle, or copula. The omission of the copula will reduce them to a mere succession of categorical propositions. The definition of an hypothetical proposition given in the second chapter, (page 74,) *Quæ sub conditione enunciat*, is more precisely applicable to the conditional and disjunctive forms.

Conditionalis habet vim illativam. Unde *Conditio* ipsa, sive pars prior, quæ est instar inferentis, *Antecedens* dici solet; *Assertio*, sive pars posterior, quæ rationem habet illatæ, *Consequens*; partiumque inter se connexio, *Consequentia*.

Condition or } *If the human soul is immaterial, . . .*  
Antecedent. }

Assertion or } *It is immortal.*  
Consequent. }

Condition or } *If words have no natural meaning*  
Antecedent. } *of their own, . . .*

Assertion or } *They carry to the hearer whatever*  
 Consequent. } *sense he has been used to attach to*  
                   } *them.*

Conditionalis cujusque sententia est, quod, datâ Conditione, datur Assertio; quod bifariam explicari potest. 1. *Si detur Conditiô, danda est Assertio*; unde *Regula prima*: Positâ Antecedente, recte ponitur Consequens. 2. *Si daretur Conditiô, danda esset Assertio*; unde *Regula secunda*: Sublatâ consequente, recte tollitur Antecedens.

Porro hoc unum statuit, Antecedente verâ, veram esse Consequentem; non autem ambas esse simul veras, aut simul falsas, aut una vera, falsam alteram: per illam igitur, sublatâ Antecedente, poni vel tolli potest consequens; aut positâ Consequenti, poni vel tolli Antecedens. Unde *Regula tertia*: Sublatâ Antecedente, vel Positâ Consequente, nihil certo colligitur.

Conditionalis igitur Syllogismi duæ sunt, nec plures, formulæ.

I. Quæ vocatur *Constructiva*.

Si C. D. tum K. Δ.

Sed C. D. ergo K. Δ.

II. Quæ dicitur *Destructiva*.

Si C. D. tum K. Δ.

Sed non K. Δ. ergo non C. D.

1. The very form of a conditional proposition implies that if the condition or antecedent be granted, the assertion or consequent must be admitted. Hence the first rule; *The antecedent being laid down as true, the truth of the consequent is legitimately inferred.*

The conditional syllogism founded on this principle is said to be of the constructive form.

*If the practice excites discontent, it should be at once suppressed: But it does excite discontent; Therefore it should be suppressed.*

*If the moon is this day in its first quarter, it cannot be eclipsed; But it is this day in its first quarter; Therefore it cannot be eclipsed.*

2. From the necessary connexion or consequence between the condition and the assertion in a correct conditional proposition, it is evident, that, supposing the condition to be true, the assertion will then be necessarily true. If therefore it is discovered (ab extra) that the assertion is not true, it must follow that the condition is not true. This principle gives occasion to the second rule: *The consequent being removed as false, the antecedent is also rightly removed.* The syllogism formed on this principle is said to be of the destructive form. Thus,

*If words were not ambiguous, they would never have been the occasion of useless controversy: But they have repeatedly been the occasion of useless controversy: Therefore they are ambiguous.*

*If each man ought to have more wives than one, more than one would have been given to Adam: But not more than one was given to Adam: Therefore each man ought not to have more than one.*

3. The assertion of the consequent, or the denial of the antecedent, cannot authorize any conclusion. For the conditional proposition affirms only that the given antecedent must be attended by the given consequent. But it does not denote any limitation to

the consequent ; which may attend the given antecedent ; but may also follow from some other antecedent. For instance :

*If the mill has too copious a stream, it cannot work ; but it has not too copious a stream ; therefore . . . . .*

*If the mill has too copious a stream, it cannot work ; but the fact is that it cannot work ; therefore . . . . .*

It cannot be inferred in the former instance that the mill can work ; or in the latter instance, that it has too copious a stream ; because the same consequent might follow from a deficiency of water, a want of repair, and many other causes.

The distinction between the constructive and the destructive form bears no relation to the quality of the conclusion. Affirmatives and negatives may be inferred by either method, as is shewn by the examples above given.

It is very frequent to express the conditional proposition alone ; the sense, the connexion, or even the tone of the speaker, enables the reader or hearer to judge whether the constructive or the destructive argument be intended. For example :

*Neque enim bonitas, nec liberalitas, nec comitas esse potest, non plus quam amicitia ; si hæc non per se expetantur, sed ad voluptatem utilitatemve referantur ; that is, destructively ; si bonitas, &c. non sunt per se expetendæ, esse non possunt : sed sunt bonitas, liberalitas, &c. ; ergo, per se sunt expetendæ.*

*Si utilitas firmæ corporis constitutione ejusque constitutionis spe exploratâ continetur ; certe hæc utilitas cum honestate pugnabit.* The argument implied is, *Sed hoc fieri nequit, ergo nec illud.*

When the argument is expressed, it is usually for the purpose of appending a prosyllogism to the categorical premiss : As,

*If there be no resurrection of the dead, then is Christ not risen ; but that our blessed Lord is risen is a fact established by the testimony of the most pure and credi-*

ble witnesses; therefore there is a resurrection from the dead.

If the earth be a plane, some edge or boundary must be discoverable; but no such edge or boundary is discoverable; for all who have persevered in sailing continually in the same direction have returned to the longitude from which they set out without making any such discovery; Therefore the earth cannot be a plane.

Conditional syllogisms are sometimes accumulated in the form of the *Sorites*. Thus,

If the dead rise not, then is not Christ raised; and if Christ be not raised, your faith is vain. If our faith is vain, our hope is confined to this life; but if in this life only we have hope in Christ, we are of all men most miserable. The immediate inference is, If the dead rise not, believers in Christ are of all men most miserable; and the implied argument is; But they are not of all men most miserable, (being alone possessed of true peace and happiness,) therefore the dead will rise.

Again; *Si hoc natura præscribit, ut homo homini, quicunque sit, ob eam ipsam causam quod is homo sit, consultum velit, necesse est secundum eandem naturam omnium utilitatem esse communem. Quod si ita est, und continemur omnes et eddem lege naturæ: idque ipsum si ita est, certe violare alterum naturæ lege prohibemur. Verum autem primum, verum igitur extremum.* (Cic. Off. iii. 6.)

The mathematical argument *ad impossibile* is a destructive hypothetical syllogism, usually founded on a premise deduced from a conditional *Sorites*. For instance;

If a straight line drawn at right angles to the diameter of a circle at its extremity does not fall without the circle, it falls within it; if it falls within it, it may be produced till it meets the circumference; if so, a straight line from the centre to the point of meeting is equal to the semidiameter between the centre and

*the extremity from which the line was drawn at right angles; if so, the two lines from the centre, with the line at the extremity of the diameter, form an isosceles triangle; if they form an isosceles triangle, the angles subtended by the equal sides are equal; if equal they are both right angles: if this be the case, two angles of a triangle are equal to two right angles: Therefore, if a straight line drawn at right angles to the diameter of a circle at its extremity does not fall without the circle, it occasions the existence of a triangle containing two angles equal to two right angles; but nothing can occasion this; therefore such a line must fall without the circle. (Euc. El. iii. 16.)*

Every conditional syllogism is reduced to an enthymem by the removal of the hypothetical premiss; and is thus easily brought into the form of a categorical syllogism. Thus; *If the knowledge of truth is desirable, it should be sought with much diligence.* The argument to be founded on this proposition, when separated from it, is a simple enthymem; viz. *The knowledge of truth is desirable; therefore it should be sought with diligence.* By supplying the suppressed premiss, *Whatever is desirable should be sought with diligence,* a pure categorical syllogism is produced.

A conditional syllogism is, consequently, incorrect, unless its terms may be strictly reduced to three. For instance; *If Livy is a faithful historian, we may rely on the facts which he relates; but he is a faithful historian, (for so he was esteemed by his contemporaries, who were best able to detect misrepresentations, and no doubt would have so done, had he afforded them an opportunity,) therefore we may rely on the facts which he records.* That is, *If the facts recorded by Livy are recorded by a faithful historian, they demand to be believed, &c.*

*If Livy is to be believed, the Romans experienced a signal defeat at Cannæ; but he is to be believed; there-*

*fore they did experience that defeat. That is, If that which depends on the testimony of Livy be true, it is true that the Romans were defeated at Cannæ, &c. In which there are three terms only.*

§. 2. *De Syllogismis Disjunctivis.*

**QUÆ** de *Conditionalis* dicta sunt *Disjunctivæ* satis cavent. Ejus enim in Syllogismo positæ sententia conditionaliter efferri semper potest.

v. g. Si, positâ vel C vel D, subsumatur

1. Sed C, ergo non D:
2. D, non C:
3. non C, ergo D:
4. non D, C:

Pro expositâ Disjunctivâ dic conditionaliter,

1. Si C, tum non D:
2. D, non C:
3. non C, tum D:
4. non D, C:

*Disjunctive syllogisms* are reducible to conditional syllogisms, by altering the form of the hypothetical premiss, as directed in the text; and to categorical syllogisms, by removing the disjunctive premiss and completing the remaining enthymem.

Disjunctive syllogisms generally have the categorical premiss confirmed by a prosyllogism.

*Virtues are either faculties, passions, or habits: But they are not faculties or passions: (for brutes, which cannot be virtuous, possess both :) Therefore they are habits.*

The same argument may be expressed *conditionally*, by substituting for the disjunctive premiss either of the following; *If virtues are not faculties or passions, they are habits; or, If virtues are not habits, they must be either faculties or passions.*

It may also be expressed *categorically* by substituting the following in the place of the hypothetical premiss: *Those qualities of the soul which are neither faculties nor passions must be habits.*

*All regal governments must be either hereditary or elective: and as I believe there is no instance wherein the crown of England has ever been asserted to be elective, except by the regicides at the infamous and unparalleled trial of King Charles the First, it must of consequence be hereditary.* (Blackst. Comm. v. 1. b. i. ch. 3.)

Here the introductory proposition is the major premiss of a syllogism in Barbara, of which the conclusion is, *The English government is either elective or hereditary*; on which conclusion is founded the subsequent *disjunctive* syllogism.

### §. 3. *De Dilemmate.*

**SUPEREST** Syllogismus quidam Hypotheticus redundans, alio nomine *Dilemma*, quia plerumque duo (etsi interdum plura) proponit adversario capienda; quorum utrumvis acceperit, causâ cadet. Tale est illud Biantis, *Si uxorem ducas formosam, habebis κοινήν, communem; si deformem, κοινήν, pœnam: ergo Nulla est ducenda.*

Hoc non valet, nisi ita comparetur, ut partem alteram accipi sit necesse; utraque autem

feriat; nec possit retorqueri. Quæ si vidisset Bias, suo sibi Dilemmate minus placuisset; neque enim vel formosa uxor vel deformis necessario futura est: sed est media quædam pulchritudo, quam Ennius *statam* appellavit; Favorinus eleganter *uzoriam*. Porro, nec formosa omnis est communis, nec deformis, pœna. Denique Dilemma facile retorqueri potest. Puta, *Si formosam duxero, non habebo pœnam; si deformem, non habebo communem.*

Dilemma nihil aliud est, quam *Inductio Negativa*; in quâ syllogismi Major conditionalis est cum consequente distributivâ: puta, *Si omnino, tum sic, vel sic, vel sic*; quam afferre categorice adeo est proclive ut non indigeat præcepto.

A *Dilemma* is a redundant hypothetical syllogism; in which the hypothetical premise consists of an antecedent or condition dependent on the several members of a distributive or disjunctive consequent.

Its hypothetical premiss is therefore at once conditional and disjunctive. Thus the proposition, *If perfect virtue exists, it is to be discovered among men*, is conditional; the proposition, *Perfect virtue is to be discovered amongst either the civilized or the uncivilized*, is disjunctive; but the proposition, *If perfect virtue exists, it is to be discovered either in the civilized or the savage state*, is compounded of the conditional

and the disjunctive, and affords the basis of the dilemma, *But it is not to be discovered in either of these states ; therefore it does not exist.*

But the dilemma further requires that the denial of each branch of the consequent be separately confirmed by a prosyllogism. Thus ; *If perfect virtue exists, it exists either among civilized or among uncivilized communities. But among the latter it is not discoverable ; for all the actions of savages are regulated by that narrow self-love which induces each to gain his own ends by cruelty and injustice. Nor is there a much nearer approach to it among civilized communities ; for the improvements of civilization produce only a spurious kind of virtue, which owns no better motive than mere expediency. Therefore perfect virtue is a thing which does not exist.*

The name implies that the members of the disjunctive consequent should be only two. It is however applied without limitation to any number of alternatives.

1. A dilemma must be so framed that one alternative must be admitted. This is its first fundamental rule. Thus it is insufficient to say, *All companions are either profitable or pernicious.* It is also inaccurate to reason thus ; *If you change your course of life, you must either be influenced by your own judgment, which is in such cases peculiarly liable to be biassed by passion or prejudice ; or you must be blindly led by some indifferent or interested person, who either consults his own advantage while professing to seek yours, or who to save himself the trouble of thinking gives his advice at random.* In both these instances a third alternative may be adduced. *Companions may be simply not injurious though not profitable. A change may be recommended by thoughtful and experienced advisers, deeply interested in your welfare.*

2. The second rule of a dilemma is, that each al-

ternative must exactly apply. The following is therefore inaccurate. *If you study metaphysics, you must either follow implicitly the sentiments of some writer on the subject; and then you merely take things upon trust: or else you must trace the workings of your own mind; and then you will involve yourself in inextricable confusion.* The second alternative does not strike home, or compel assent. A man may trace for himself the workings of his own mind without involving himself in inextricable confusion.

3. A dilemma ought to be incapable of being retorted. This is its third fundamental rule. Thus Aristotle represents an Athenian mother as endeavouring to dissuade her son from taking a part in public business by this dilemma, *Μὴ δημογορῆς· ἂν μὲν γὰρ τὰ δίκαια λόγῃς, οἱ ἄνδρες ποῖ σε μισήσουσι· ἂν δὲ τὰ ἄδικα, οἱ θύοι.* To which the young man might answer by the following retort; *Δὲ μὲν ἔν δημογορεῖν· ἂν μὲν γὰρ τὰ δίκαια λόγῳ, οἱ θύοι με φιλέουσιν· ἂν δὲ τὰ ἄδικα, οἱ ἄνδρες ποῖ.*

The nature of these rules proves that it requires a considerable degree of ingenuity to frame a dilemma which shall be altogether unexceptionable.

The following are instances of the *Dilemma*.

*Si gravis sit dolor, brevis erit; si longus, levis; ergo fortiter ferendus.* (Epicurean argument in Cic. *Fin.* i. 12. and ii. 7.)

Ἄλλ' ἢ γὰρ θαυμάζω πότμος ὡς κεραιῶν βασιλεὺς αἰτῷ τὰ ὅπλα, ἢ ὡς διὰ φίλων καὶ δούρων. Εἰ μὲν γὰρ ὡς κεραιῶν, τί δὲ αὐτὸν αἰτῶν, ἀλλ' ἐλαβοῦν ἐλθόντα; εἰ δὲ φίλους βύλονται λαβοῦν, λογέτω τί ἔσται τοῖς στρατιώταις, ἂν αὐτῶ ταῦτα χερσίσονται. (*Xen. Anab.* ii. 1, 8.)

Οὐ παρεδόσμεν τὰ ὅπλα· ἡμεῖς γὰρ οἴμεθα, εἰ μὲν θεοὶ βασιλεῖ φίλους εἶναι, πλείονος ἂν ἔξωι εἶναι φίλοι, ἔχοντες τὰ ὅπλα ἢ παρεδόντες ἄλλῃ· εἰ δὲ θεοὶ πολέμῳ, ἄμεινον ἂν πολέμῳ ἔχοντες τὰ ὅπλα, ἢ ἄλλῃ παρεδόντες. (*Anab.* ii. 1, 14.)

*Did they believe what they then asserted? If they*

did not, they had imposed on the public ; and if they did, the public ought never again to listen to such men.

*Legatos decernitis ? si ut deprecentur, contemnet : si ut imperetis, non audiet. (Cic. in Anton.)*

Whoever contends that public discussion is not the best instructor in political transactions is either foolish, or else biassed by some private interest. He is foolish, if he thinks it possible by any other method to form a judgment of that which is still future and involved in obscurity : and he is under the influence of interested motives, if, while he wishes to persuade to some dishonourable measure, he feels himself incompetent to speak persuasively in support of that measure, but hopes by bold accusation to strike alarm both into his opponents and into his audience. (*Thucyd. iii. 42.*)

An unholy minister is the greatest of all sinners ; for either he is a person of more than ordinary knowledge, or he is not. If not, he sinned greatly in undertaking that office, for which so great knowledge is requisite : If he be, his knowledge doubtless increaseth his guilt. (*Bp. Bull.*)

## CAP. V.

## DE SYLLOGISMO QUOAD MATERIAM.

§. 1. et 2. *De Opinione.*

§. 1. HÆC de Syllogismo quoad *Formam* spectato. Jam de eodem quoad *Materiam*, h. e. *Certitudinem* et *Evidentiam* propositionum ex quibus componitur.

*Certa* autem propositio est, cui nihil occurrit in contrarium, vel quod occurrit instar nihili est; ut, *Omnis homo est risibilis: Evidens*, quæ simul ac percipitur assensum imperat; ut, *Totum est majus sua parte: Dubia*, in quâ hæremus, cum illius pars utraque valde se probet intellectui; ut, *Astra regunt homines*; nam et regere et non regere videntur.

Dubitanti siquid aliud occurrat, quo pendens animus in alterutram partem propendeat, quod erat Dubium fit *Probabile*. Et potest, quod probatur, *Verum* esse, sed probanti tantum *Verisimile* est. Multis nihilominus assentimur isto modo, et assensui nomen est *Opinio*.

Est igitur *Opinio* propositionis *tantum probabilis*; eique nulla competit certitudo; sed in ipsâ sui ratione includit *formidinem oppositi*. Sunt Opinioni tamen *Gradus* quidam *ad certitudinem*, pro diverso pondere rationum quæ

assensum movent, diversi. Est quod omnibus, quod plerisque, quod sapientibus videtur; et quod horum singulis, quod plerisque, quod celeberrimis: quorum omnium dispar est probabilitas; quorundam vero tanta, ut ad certitudinem quam proxime accedat.

§. 2. *QUI Opinionem* (h. e. assensum quemlibet scientiâ minorem) parit, Syllogismus appellatur *Dialecticus*, Διαλεκτικός, i. e. probabiliter disserens: quæque proprie dicitur *Dialectica*, est pars Logicæ quæ de hoc agit Syllogismo. Multiplex autem est materia circa quam versatur opinio, et per omnes sparsa disciplinas: cujus infinitam pene varietatem ad pauca capita revocavit Aristoteles, et sub iis Effata Dialectica suis quasi in sedibus locavit. Hæc itaque capita Τόποις, i. e. *Locos* appellat; unde Syllogismus Dialecticus alio nomine *Topicus* dicitur.

De Locis Dialecticis et ad ea pertinentibus Effatis, sive (ut Scholastici vocant) Maximis, plura non loquor. Pro exemplo tamen hoc accipe: Inter Maximas Loci primi, qui est *Testimonium*, reperitur hæc; *Peritis credendum est in suâ arte*: ex quâ elicitur hujusmodi Syllogismus Topicus. *Quod* (Pythagoras) *Ipsæ animæ concedendum est: Migrare animas Ipse*

*dixit; ergo Migrare animas concedendum est. Probatur Major; quia Peritis credendum est in suâ arte.*

*Opinion, or Belief* is founded on *Probability*. That is probable which is *veri simile*, which bears a greater resemblance to truth than its contrary does. That is *apparently* or *relatively* probable, in which there *appears* or is *supposed* to exist a resemblance to truth. *Actual* or *objective* probability exists in those things in which there is no uniform or necessary cause or antecedent, but which occur *ἀπὸ τῆς φύσεως*, having (to speak metaphorically) a certain bias more or less strong to one of two or more different results. Thus, if a die has on each face a different number, the throwing any *certain* number is neither probable nor improbable, but indifferent. But if it be marked on three sides with *one*, on two sides with *two*, and on the remaining side with *three*, there is an *actual* probability that the *trois* will be least frequently, and the *ace* most frequently thrown. On the other hand, the sanguine purchaser of a lottery ticket bearing a favourite number *thinks* there is a great probability of obtaining a large prize; whereas the *actual* probability is exactly the reverse. And if he has formerly obtained a large prize by a ticket of the same number, the *relative* probability, that is, his fancy as to the chance of the same result a second time, may perhaps be increased in the same ratio in which its *actual* or *absolute* probability is diminished.

There are an infinite number of degrees both in real and in apparent probability. And a similar variety exists in the strength of the *opinion* or *belief* produced by them. The lowest degree is *suspicion*, *doubt*, *hesitation*, *uncertainty*. The highest degree amounts to *moral certainty*. For every thing, phi-

losophically speaking, is classed among probabilities which is not strictly demonstrable.

It is a *slight* degree of probability which induces a person to hope for a fine day to-morrow, because it is fine to-day; or which regulates the compilers of almanacks in their weekly conjectures concerning the weather. It is a *higher* degree of probability which would lead a man to infer from the character of popery that the public worship of English protestants at Rome would not be long allowed. A *further advance* in the scale of probability is made if public report represents the English Church there as actually closed. But the probability is received as a *certainty*, when a credible friend upon the spot communicates by letter the fact of its suppression.

The proofs on which opinion or belief is founded may be either *direct* or *indirect*.

1. The *direct* foundations of assent to any thing as probable, are personal *observation* and *experience*. The rustic acts on this kind of probability when he applies a herb to stanch the blood from a wound or to reduce a swelling, because, having found it beneficial on former occasions, he expects it to be again attended with the same result. On the same principle is founded the general expectation that *the sun will rise to-morrow*; that *summer will succeed the spring*; that *April will be showery and August hot*; that *the parent will be angry when his child runs heedlessly into danger or mischief*. Under the influence of this species of probability, although of a degree approaching much more nearly to demonstration, the philosopher without hesitation deduces an universal conclusion from an accumulation of particular observations and experiments which have uniformly brought him to the same point. All inductions (except those which enumerate every individual) depend on analogy, which is a species of probable or presumptive evidence.

2. The mind is influenced by *indirect* proof to acquiesce in the probability of any thing, when it infers that probability by the help of some principles already received as probable.

The most frequent and almost universal *indirect* proof of probability is *testimony*. This is the only mode by which it is possible to ascertain the probability or truth of *facts* which have not fallen under our own observation. And as to *principles* and *general conclusions*, although testimony is not the legitimate method of attaining them, yet in consequence of the shortness of life, the imperfection of our faculties, the want of opportunity, and the paramount importance of other pursuits, it is necessary, in most cases, to be satisfied with this evidence, and to rely on the fallacious maxim, *Cuique in sua arte credendum*. Even the philosopher must often, in his own science, rely on the testimony of others; or else he will occupy his time in retracing the steps which they have trod, instead of proceeding from the points to which they had attained, and thus advancing science. The student will also in many cases find it expedient to adopt some general principles in a hypothetical manner, as probabilities resting on the simple testimony of his instructor, with the purpose of subsequently submitting them to the strictest test of proof or demonstration which the subject will admit.

Those general principles, indeed, which are thus received from the evidence of others, ought not to be so admitted as if they depended on the *authority*, the *ipse dixit* of those from whom they were received; that is, as if the fact, that such was their *opinion*, were sufficient evidence of the correctness of the principle; but simply as a matter of *testimony*, that a moral or demonstrative certainty has been philosophically acquired by them. Thus we do not believe the laws of gravitation because philosophers have asserted or held them; but because

we have strong probable evidence of the historical fact, that they have proved them by an attentive and laborious induction.

The probability of facts depends on the credibility of the testimony on which they rest. The chief qualifications which render a witness credible are these:

1. That he have been an eye-witness, or have had other satisfactory means of decidedly knowing the facts.

2. That he possess good sense and sound judgment; that he be free from a fanciful imagination, superstitious feelings, &c.; and that he have that kind of knowledge which will enable him to comprehend the nature of the fact.

3. That he be a person of habitual veracity; which we may judge to have been the case if he obtained credit among his contemporaries, his own country and neighbourhood, his immediate successors, &c.

4. That he be free from any bias of interest or prejudice. If the testimony be opposed to his previous opinions or habits of thinking, and inconsistent with personal interest, the probability of the fact is confirmed; and still more so if the same testimony be persevered in, although dishonour, loss, pain, or death be the manifest consequence.

5. That he maintain a consistency in all the parts of his testimony; for real inconsistencies afford positive proof that some part of the testimony is inaccurate, and a suspicion that the whole may be so. Yet *apparent* inconsistencies should be well examined; for circumstances may separately appear opposite which in connexion with a series of events are not really so. A coincidence in the subordinate parts and minutiae of a narrative helps much to establish the probability of it. An apparent variance between circumstances which on close examination appear compatible, affords a very strong

confirmation to the credibility of the witness: such particulars being out of the probable reach of conclusion.

If a witness in whom these qualifications exist be confirmed in his declarations by the concurrent testimony of other unbiassed and independent witnesses; if his personal enemies, or those unfriendly to the disclosure of the facts or interested in the suppression of them corroborate his testimony; if his testimony be made public and yet not disproved or denied; all these and similar circumstances, added to the former, raise the probability to the highest degree, and entitle it to the denomination of certainty.

§. 3. *De Certitudine et Evidentiâ.*

*CERTITUDO* eadem videtur, quæ improprie vulgo dicitur *Evidentia Moralîs*; quæque iis convenit effatis, de quibus nemo prudens dubitaverit: qualia præsertim sunt *Principia* ad vitam moresque pertinentia, cum conclusionibus quæ ab his legitime deducuntur. Nam hujusmodi propositiones videntur esse plusquam probabiles, nondum tamen evidentes: neque enim eas quisque amplectitur quamprimum apprehendit; sed iis prudens sine ullâ formidine assentitur.

*Certitudo* duplex est; alia *Objecti*, quæ est rei percipiendæ; alia *Subjecti*, quæ est Intellectûs percipientis. Et utrique sui sunt *gradus*. Est enim *Certius* certitudine Objecti, id

cui minus obest; certitudine Subjecti, cui quod obest minus percipitur.

*Certainty*, as here described, is comprehended in *probability* taken in the extended sense in which it has been used in the preceding observations; and is the medium between that which is commonly called by the name of probability on the one hand, and intuition and demonstration on the other. It is that highest degree of probability (in the philosophic sense) which none can doubt without folly or obstinacy: and therefore has the same practical influence as demonstration.

Physical and inductive conclusions are certain, not evident: deduced by analogy, not by demonstration. Yet men act with as much confidence on the principle *that the harvest moon will occur at such a season*, as on the demonstrable fact that *the opposite angles formed by the intersection of two straight lines are equal*, or the self-evident principle that *the whole is equal to the sum of its parts*.

The probability educed from satisfactory testimony also produces certainty. We are certain of the main facts related by Livy, abating only the casual frailties and errors to which the most accurate and judicious are liable, and the relation of prodigies in which the superstition of his age led him to place credit. Nor do a few circumstantial discrepancies between him and Polybius authorize us to mistrust either, as to the main facts which they relate. The authenticity and inspiration of each book of the holy Scripture depend on a train of probable proofs, which when combined amount to absolute certainty. The great and fundamental fact of Christianity, the resurrection of our blessed Lord, is not strictly speaking *demonstrated*, (for to demonstrate a past event is a contradiction in terms;)

but it is established by such an accumulation of testimony as amounts to the strongest possible certainty.

The term *certainty* is employed both *objectively* and *subjectively*. *Objective certainty* relates to the thing which is presented to the understanding and judgment. *Subjective certainty* denotes the impression made on the mind: namely, that state of mind in which it feels free from doubt on any subject. And when thus applied it expresses the effect of intuitive or demonstrative as well as of probable evidence.

The mind often *feels* certain of that which actually is *not* certain. The influence of early associations, the authority of eminent men, the opinions of our ancestors, general consent, the lively manner in which a subject has been first brought before the judgment, too great haste and too little cautious examination in coming to a decision, as well as other causes, occasion this error of judgment.

Besides the mode of producing certainty already mentioned, (namely, by shewing the highest degree of probability,) it may be occasioned by consciousness; as a man is certain that he *thinks, hopes, loves, &c.* and lastly, by immediate revelation from God, as the facts and doctrines of holy Scripture.

Evidentia similiter duplex est; *Objecti* nempe, et *Subjecti*; et utrique sui sunt *gradus*. Dispar enim evidentia est, prout id quod percipitur vel est sponte perspicuum; vel a sponte perspicuo propius abest; vel utrumvis horum videtur.

Atque hinc, rursus, *Evidentia* multifariam dividitur. Sed nostro sufficit instituto, quod

hæc, de quâ loquimur, Propositionis *Evidentia*, vel est 1. *Axiomatis* sponte perspicui; cui proinde sine ullâ probatione assentimur: vel 2. *Conclusionis* ab ejusmodi axiomatibus (*immediate* an *mediate* parum refert, modo) rite deductæ. Nam cum una sit Veritas, sibi constans, apteque cohærens; quodque verum, vel per se certum atque evidens sit, vel cum effatis quibusdam certis et evidentibus necessario connexum; fit, ut quamprimum apprehenditur hæc connexio, eâdem omnia quasi luce perfusa, parem (specie) consequantur assensum.

*Objective evidence* in the primary degree is a relation between any two things, so necessary and obvious, that their agreement or disagreement cannot but be allowed as soon as perceived: such are axioms; which neither require nor admit syllogistic proof: as, *Things which are double of the same are equal to one another*. In the secondary degree, it denotes the certainty of those relations which may be immediately deduced from axioms deemed self-evident: as, *the square on the hypotenuse of a right-angle-triangle is shewn to be equal to the sum of the squares on the sides, because each of these is double of certain triangles which are equal to one another*.

Subjective evidence is the full and accurate discernment of these relations.

Many things are supposed to be objectively evident which are not so. Thus the principle *Vox populi vox Dei*, though wholly erroneous, has been often taken as a foundation of argument supposed to be demonstrative.

§. 4. *De Scientiâ.*

QUI postremæ huic evidentiæ competit assensus apud Logicos vocatur *Scientia*. Est igitur *Scientia conclusionis certæ et evidētis*, a præmissis certis et evidētibus legitime deductæ. Certitudinem vero utramque intelligo; et utramque (tam Objecti scilicet quam Subjecti) evidētiā. Nam per Objecti certitudinem *Scientia* distinguitur ab *Errore*; per Subjecti certitudinem ab *Opinione*. Si desit evidētia subjecti, nulla est *Scientia*; ubi sola adest, *persuasa* tantum, non *realis* evidētia est.

Qui *Scientiam* parit Syllogismus appellatur *Scientificus*; alio nomine, Ἀποδεικτικὸς *Demonstrativus*, et interdum *Demonstratio*. Conclusiones enim certas et evidētes apud Mathematicos reperiri multas in confesso est: cumque Illi, quæ docent, soleant adjuncto *Diagrammate* ostendere; seque propterea non rem probare, sed (quod majorem innuit Evidētiā) *Demonstrare* dicant; accessito igitur ab illis vocabulo, *Syllogismus scire faciens* apud Logicos vocatur *Demonstratio*. Cumque in *Scientiâ* (siqua forte possibilitas, tamen) nullus sit erroris metus; quod hujusmodi Syllogismis, sive uno, sive pluribus probatur, id libenter agnoscimus sicut perhibetur ita

*esse ; et aliter (saltem naturaliter) se habere non posse.*

*Demonstration* consists of a syllogistic argument, or series of arguments, in which a conclusion is necessarily and evidently inferred, either immediately, or by the intervention of intermediate truths, from axiomatic and self-evident principles.

It produces *knowledge*, that is, a clear perception of and full acquiescence in the thing demonstrated. This perception and acquiescence may continue when the demonstrative process is forgotten.

*Demonstrative knowledge* is not so clear or evident as that which proceeds from *intuition*. It is *theoretically* superior to that acquiescence which is called *certainty*, and which proceeds from the highest class of probable proofs. In practice however it is often found, that as strong a conviction is produced by these, in the subjects to which they are appropriate, as by demonstration. We may practically be as fully and as justly convinced of the authenticity of the holy Scriptures, as of the equality of the angles of an equilateral triangle.

#### §. 5. *Demonstrationis species.*

DUÆ sunt Demonstrationis species. Prima, quæ demonstrat *Orī*, sive *Quod res sit* ; probando, vel simpliciter et directe *rem ita esse*, et tunc vocatur *Ostensiva*, seu potius *Directa* ; vel si *non sit*, absurdi aliquid necessario secuturum. Hæc est quæ Græce dicitur Ἀναγωγὴ, Latine, *ducens ad absurdum, impossibile, incommodum*, uno verbo recte dixeris *Obliquam*.

Exemplum ejus dat reductio Syllogismi a *Baroko* vel *Bokardo* ad *Barbara*.

*Ostensiva Directa* fit duobus modis.

1. Quando aliquid demonstratur per *Effectum*; ut si diceret, *Luna Soli opposita nigra cernitur*; ergo patitur *Eclipsin*. 2. Quando per *Causam remotam*; ut si idem colligeres quia *Sol et Luna diametraliter opponuntur*. Quod si illud demonstrares per *Causam proximam*, quia nempe *Terra inter Solem et Lunam interponitur*, tum fieret

Secunda Demonstrationis species  $\Delta\iota\sigma\tau\iota$ , i. e. quæ docet *Quare*, vel *Propter quid* res sit; causam ejus assignando, non quamcunque, sed *proximam* seu *immediatam*. Sic enim statuunt Logici quod *Scientia* omnis est *Cognitio rei per causam*, sed *proprie dicta per propriam*, h. e. *proximam*: nam per remotam *Cur sit* aliquatenus ostenditur: nihil amplius quam *Quod sit* demonstratur.

Utriusque Speciei membra gradu differunt. Nam obliqua  $\tilde{\sigma}\tau\iota$  est deterior directâ, quia non demonstrat *rem ita esse*, nisi quatenus docet *eam aliter se habere non posse*; quod tametsi eodem redeat, tamen animo minus satisfacit; nam si par sit utrobique Certitudo, hujus tamen minor Evidentiâ est.

Habet et  $\Delta\iota\sigma\tau\iota$  suos gradus; quia potest esse

causa proxima quæ non est *prima*, h. e. per se nota et indemonstrabilis: cujus ideo præfertur Evidentia, quia (contra quam cæteræ) suâ luce est conspicua, et nihil indigent alienâ. Quare, quæ hanc adhibet causam demonstratio, et habetur, et nominatur *Potissima*.

Sunt igitur ex mente Logicorum Demonstrandi quatuor modi; quorum alter alteri evidentia, adeoque dignitate, præstat. *Valet Demonstratio obliqua; Potens est quælibet Directa; Potior* quæ per causam proximam, *Potissima* quæ per primam demonstrat. Hujus est vulgata illa *Definitio, Syllogismus constans veris, primis, immediatis, notioribus, prioribus, et causis Conclusionis*. Exemplum, nisi forte apud Mathematicos, an uspiam occurrat nescio.

1. Of the first general class of demonstrations (sc. which prove *ἔτι*, *that the thing is*,) the least evident is the *Ἀπυμυγὴ* or argument *ab impossibili*. It should never be employed, except when no direct mode of proof is practicable. Several of the properties of circles are thus demonstrated by Euclid; see book iii. prop. 1, 2, 4, 5, 6, 9, 10, 11, 12, 13, 16, 18, 23, 27; and the last propositions comprehended in prop. 7 and 8. Such arguments are indeed incontrovertible; but the subjective evidence produced by them is not so great as that which proceeds from direct demonstration, and consequently they do not affect the mind with equal satisfaction.

2. *Demonstration of the fact* (*ἔτι*) when direct, may be either *a priori*, or *a posteriori*. The latter, how-

ever, ought not to be introduced under the head of *demonstration*, in the sense in which the word is here used, namely, as consisting in a deduction of truths from premises either self-evident or demonstrated. It is most adapted to physical or moral proof; thus, when a phenomenon or a fact is admitted or proved by sufficient testimony, the cause, or necessary antecedent to that fact or phenomenon, is manifestly inferred.

3. Demonstration *a priori* is twofold: it infers the conclusion either by means of some *remote cause*; and then it is considered as proving no more than the fact, and thus belongs to the *former* general class of demonstration, sc. the *ἐπὶ*; or by means of the *immediate cause*; and then it is considered as more evident, and as constituting the *second* class of demonstration; namely, the *διὰ*. If this immediate cause be an axiomatic principle, the evidence is conceived to be brought to the highest possible degree.

The term *cause* is here employed, not in its common signification, as denoting *that which produces or effects any thing*; but simply, for *that which we conceive to be prior to another thing in the order of nature, and without the existence of which that other thing could not exist*. The two senses are often coincident; but the latter comprehends the former as the genus of the species. Thus the intervention of the earth between the sun and the moon is, in both these senses, the cause of an eclipse; but the parallelism of the opposite sides of parallelogram is, in the latter sense only, a cause of the equality of the opposite sides and angles.

The terms *demonstration*, *knowledge*, *evidence*, &c. are vaguely employed, not only in common usage, but even by philosophical writers. They are often applied to the proofs and the belief of things *probable*. And where the probability is of the higher order, no inconvenience arises from such application

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of the words. It is only of importance in the study of each author, to ascertain as nearly as possible in what sense he is in the habit of using them. This is necessary to avoid ambiguity and misapprehension.

## CAP. VI.

## DE METHODO.

§. 1. *Methodi Species et Regulæ.*

**METHODUS** est talis dispositio partium alicujus disciplinæ, ut integra facilius discatur. Estque duplex. 1. *Inventionis*, quæ disciplinæ præcepta invenit; 2. *Doctrinæ*, quæ tradit. Prior procedit a sensibilibus, et singularibus, quæ sunt *nobis notiora*, ad intelligibilia, et universalia, quæ sunt *notiora naturæ*: posterior, contra.

Method is by some writers considered to form a *fourth* branch of Logic. Of those who object to this arrangement some comprehend it under the head of *reasoning*; others conceive it to be a species of *judgment*; while others, with a greater degree of accuracy, suppose it to belong to the operation of *apprehension*. Bacon suggests that it should be esteemed a distinct and independent science.

The chief objects of method are, *the investigation and discovery of truth*; and *the communication of discovered truth*. There are accordingly two species of method, respectively adapted to these two objects. The former is called the method of *invention*; the latter, the method of *instruction*. The former proceeds from things relatively best known; the latter often, but not necessarily, the reverse. In physical and metaphysical subjects the things relatively best known are individual things, the knowledge of which is conveyed to the mind by means of the *external senses*, or excited by acts of consciousness.

Methodus Doctrinæ duplex est. *Perfecta*, ἀρχοματικῇ; et *Imperfecta*, ἐκτετατικῇ. *Perfecta* rursus, vel *Universalis* est, quā integra disciplina, vel *Particularis*, quā aliqua disciplinæ pars docetur.

It is expedient to adapt the method of communicating truth to the state of the recipients. Those whose minds are prepared by previous study and acquaintance with similar topics, will admit of a more scientific and recondite arrangement than the illiterate. To the former, the *perfect, esoteric*, or *acroamatic* method may be more adapted; the latter require the use of a *popular, esoteric* method, even though it be scientifically less perfect. The ancient philosophers appear to have frequently adopted the *esoteric* form for the sake of excluding from knowledge all besides their own favoured followers.

Utraque duplex est:

1. *Compositoria* sive *Synthetica*, quæ inservit disciplinis Theoreticis; et a notione *Subjecti* incipiens, principia ejus et species investigat, donec a summo genere in istā disciplinā perveniat ad infimam speciem.
2. *Resolutoria* sive *Analytica*, quæ inservit disciplinis Practicis; et a notione *Finis* incipiens, subjectum, et tandem media investigat.

The *analytic* method, which is first in the order of nature, is usually the method of discovery; and may be the method of instruction. It begins with

those objects which are most known; examines their properties and relations; compares them together; traces back effects to causes; and thus proceeds by a path opposite to the course of nature, until it arrives at general principles and laws. This is the process of induction. Thus it is observed that *heat* exists in the rays of the *sun*, in *culinary* and *subterraneous fire*, in *solids* or *liquids* exposed to the influence of fire, in *animal bodies*, &c. By repeated examinations and comparisons, the accidents of heat, (which are discovered by their existence in some things which contain that quality and their absence from others,) are separated from those things which, being discovered to be uniformly present with it, are supposed to be essential to it. Hence is ultimately derived the definition of *heat*. The definition is necessarily the last step, since it expresses the nature of the thing, the discovery of which was the object of the analysis.

The *synthetic* method, which is often found most convenient for the communication of truth, is the reverse of the *analytic*, as it proceeds from general to subordinate truths, from universals to particulars, from causes to effects.

To acquire, for instance, an acquaintance with mineralogy, we may enter on a personal examination of all the earths, and stones, and metals, &c. which we can discover; scrutinizing distinctly their various properties and characteristics; classifying them by placing together those in which there exists a striking similarity: reviewing the classes, and re-arranging them according to more comprehensive similarities; and so on repeatedly, until we arrive at certain classes of the most general nature. Or we may commence by learning the most generic classes, with their divisions and subdivisions, and the distinguishing properties of each, till we descend to the lowest species, and thence to individuals; which are adduced, not as the sources of informa-

ation, but as illustrations of the doctrines previously laid down on the subject. This is the *synthetic*, the former is the *analytic* process. The original discoverer of the science, or the philosopher who desires to improve it by fresh discoveries, must adopt the *analytic* method. But in communicating the science to others, either method may be adopted. The *analytic* has some advantages, inasmuch as it makes the student a partaker, as it were, in all the interest of the discovery. But the *synthetic* mode is more universally adapted for this purpose, as it displays the whole science at one view, and produces conviction in a manner less laborious, and consequently better suited to the generality of those who wish to acquire the science.

*Geometrical analysis* and *synthesis* are in their application in some degree different from physical or metaphysical analysis and synthesis. The analytical mode, in geometry, consists in supposing a proposition true, and discovering what principles can be appealed to in its proof; tracing one step after another until the mind arrives at some known principle, the truth of which proves the correctness of the hypothesis. Thus if, without previous information, any one should perceive that in several practical instances the three angles of a triangle have appeared to be equal to two right angles, and should be desirous to ascertain whether that equation may be subsequently relied on as uniformly correct, he would perhaps observe that the production of one side of the triangle forms with the adjacent side angles equal to two right angles, one of which is one of the angles of the triangle. He would infer that if the outer angle could be proved equal to the two others, his hypothesis would be established. If previously acquainted with the properties of parallel lines, he would soon discover a method of so dividing the outer angle, that one portion should be equal to one of the remaining angles of the triangle,

and the other to the other. Or if instead of producing a side, it should occur to him to draw a straight line through one angular point parallel to the subtending side, he would discover three angles which are together manifestly equal to two right angles, of which one is an angle of the triangle, and the other two evidently shewn, by the previously known properties of angles formed by parallel lines, to be equal to the other angles of the triangle. In communicating this proof, he might retain the same analytical method, retracing the process of his mind in the discovery, or he might reverse the order, and state the demonstration synthetically; which (except in the occasional arguments *ab impossibili*) is the method adopted by Euclid in his *Elements*. Many conceive that geometry would be more easily acquired by the analytic method.

Arts, as reading, logic, manufactures, &c. must be taught analytically.

It is sometimes convenient to adopt the opposite methods even in different parts of a treatise on the same science.

It occasionally occurs that the same method may in different points of view be considered either synthetic or analytic. The terms themselves are also used by some writers in so vague a manner, as to convey a sense almost opposite to their real signification.

*Regulæ Methodi generales hæc sunt.* In tradendâ disciplinâ 1. Nihil desit aut redundet. 2. Singulæ partes inter se consentiant. 3. Nihil tractetur quod non sit subjecto aut fini homogeneum. 4. Singulæ partes aptis transitionibus connectantur. 5. Præcedat in docendo,

sine quo alterum intelligi non potest, ipsum vero sine altero potest.

1. Cicero complains of *deficiency* in the method adopted by Panætius, (*Off.* i. 3. see p. 61.) and records a similar charge brought against him by Antipater Tyrius, for the omission of *health* and *property* among *things useful*. (*Off.* ii. 24.) Aristotle in the introduction of his Rhetoric comments on the omission, by former writers on the subject, of that in which the essence of the art consists, namely, *proofs*. Needless repetitions, and enlarged discussions on those parts of a science which are obvious, incur the charge of *redundancy*. Too great a number of divisions and subdivisions, though they give an appearance of acuteness, are seldom free from redundancy: as, on the other hand, the old custom of reducing every thing to dichotomies must often have been the occasion of great imperfection and deficiency.

2. The divisions should be collateral, or immediately belonging to the same genus. Thus it would be absurd to adopt the following method for a treatise on Logic: 1. *Of Simple Terms*; 2. *Of Judgment*; 3. *Of Categorical Syllogisms*; 4. *Of Hypothetical Syllogisms*, &c. The last two classes are of a subordinate rank to the two former. The third head should be *of Syllogisms*; of which those two should form subdivisions. See Cicero's comment on Epicurus's division of *desires*, page 61. and the observations on the same page in relation to the arrangement of his treatise *de Officiis*.

3. Digressions, even though they may be interesting in themselves, are injurious to the unity of a treatise. Even illustrations should be employed with caution, lest they draw off the thoughts from the main subject.

4. There should be a mutual dependence or natu-

ral sequence of the parts ; each bearing a closer connexion with that immediately preceding it than with any other. The form of transition, as to the mere expression, is a matter of taste and expediency. It is more elegant when one part appears to glide naturally into another. But an abrupt transition is often better adapted to secure perspicuity.

5. To this fifth rule every other must yield, as in the instance of pure mathematics. A slight explanation of the constituent parts of propositions and syllogisms is introduced in this treatise by anticipation, (page 13.) in conformity with this rule.

§. 2. *De Methodo Mathematicâ.*

IN tradendis disciplinis suis Mathematici hæc utuntur methodo. 1. *Vocum significationem* constituunt: h. e. *Vocabula artis* suo quodque loco sic definiunt, ut legem sibi statuunt iis nusquam uti, præterquam in eo sensu quem explicat definitio. 2. Definitionibus subjungunt *Axiomata*, quas et *κοινὰς ἐννοίας* vocant; h. e. effata sponte perspicua, quibus in decursu operis utendum vident. 3. Posthæc adjiciunt *Postulata*, quæ ad praxin spectant; suntque per se certa et evidentia; quæ proinde sine probatione concedi suo jure *postulant*.. 4. Hisce positis, propositiones demonstrant; ordine, et, quoad fieri potest, affirmative: unâ lege contenti, ut, quicquid demonstratum eunt, ex ante datis vel probatis manifestum faciant. Cætera, in

quibus methodi præceptores multi sunt et odiosi, non morantur.

Mathematicorum methodum in cæteris artibus et scientiis, si tenere non liceat, æmulari certe licet. Quo ad hanc quæque proprius accedit, eo cæteris perfectior, et ad docendum aptior videtur. Sed ad ea quæ docentur retinenda, nihil est utilius absoluti operis conspectu; in quo, ea quæ sunt ante (extra ordinem fortasse) demonstrata, suis quæque in locis, h. e. servatâ Logicorum methodo, reponantur.

Mathematicians lay the foundation of their subsequent demonstrations, in *definitions*, which, while their primary object is simply to fix the signification of the terms employed, serve at the same time as *artificial* principles; and in certain *natural* principles both practical and theoretical: the latter being called *axioms*; the former *postulates*.

The order of propositions (as for instance in Euclid) is partly natural, partly arbitrary. It is probable that any one who should independently discover the same truths, would arrange them very differently, and yet perhaps not less scientifically.

A synoptic arrangement of mathematical conclusions according to their subjects and relations is a profitable exercise. The theorems of the first book of Euclid, for example, might be thus arranged:

- |                                      |                      |
|--------------------------------------|----------------------|
| 1. Of Lines and Angles, . . . . .    | } 11 Cor. 13. 14.    |
|                                      | } 15. and Cor. 1. 2. |
| 2. Of Parallel lines, . . . . .      | } 27. 28. 29. 30.    |
|                                      | } 33.                |
| 3. Of Triangles: general properties, | } 20. 18. 19. 17.    |
|                                      | } 16. 32.            |
| . . . . . special properties,        | } 5. 6. 5 Cor. 6     |
|                                      | } Cor. 47. 48.       |

4. Of Triangles in relation : sc.  
     equal and similar, . . . 8. 4. 26. 34.  
     equal, . . . . . 37. 38. 39. 40.  
     unequal or dissimilar, 7. 21. 24. 25.
5. Of Parallelograms in general, 34. 46 Cor.  
     . . . . . in relation : viz.  
         . . . mutually, . 35. 36. 43. 47. 48.  
         . . . to triangles, . . 41.
6. Of Rectilineal figures in ge- } 32 Cor. 1. and  
     neral, } 2.

The attempts which have been made to apply the mathematical method to other sciences have not generally proved successful.

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Of the following Appendix, the substance of the first section has been anticipated; (see page 165.) The *fallacies of diction* may be illustrated by the observations on analogous and equivocal nouns, (page 23—27,) on nouns of secondary intention, (page 30—32,) and on the first and third rules of the structure of syllogisms, (page 117, 118, and 120, 121.) The pretended *inexplicable* arguments or sophisms of the ancient logicians, §. 5—11, are far too childish to deserve notice. The fourth section comprehending the *Fallaciæ extra dictionem* constitutes the most useful part of the Appendix. Though the enumeration be in some respects perhaps defective, and in others redundant, yet it supplies a convenient classification of most of the chief fallacies which occur in argumentative and especially controversial writings.



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## APPENDIX.

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### *Solutio Sophismatum.*

§. 1. CUJUSCUNQUE Syllogismi difficultas ad duas Species revocari poterit; alteram, quæ in *Argumenti Materia*, alteram, quæ in *Formâ* consistit: nam qui has duas expedire noverit, is in tertiâ, quæ ex ambarum complexione oritur, non hærebit.

Si inciderit *Materia* difficilis, unicum huic malo remedium est, disciplinam unde desumitur argumentum, fideliter didicisse: quod ut facias, *Instrumenti* operam tibi Logica præstabit; sed ulterius nihil confert. Proprium illi munus est Syllogismi Formam explorare; h. e. Utrum Conclusio ex Præmissis consequatur propter ipsum colligendi modum: Sed an ponendæ sint Præmissæ (nisi forte sint pure Logicæ) aliunde discendum est. Sicubi autem Syllogismus qui legitimus non est, videatur tamen; aut contra; (quorum utrumque sæpissime, et de causis pene infinitis accidit) formalem ejus consequentiam excutere est Artis Logicæ.

Qui hoc opus aggreditur, id sibi negotii datum sciat, ut difficilem suum syllogismum, primo in categoricum purum, vel in plures, si opus sit, convertat; tum ad Canonem accurate exigat; cujus operis ratio præcedente Libro p. 116. et seqq. abunde declarata est. Summa rei huc redit. Consideranda est primo Conclusio; ejusque Termini solerter distinguendi: Prædicatum enim est Major Terminus Syllogismi; qui proinde Præmissam quoque Majorem indicabit; Subjectum pariter Minorem; et in utrâque sese offeret Argumentum sive Terminus Medius: Unde et si desit Præmissarum alterutra, facile suppleri poterit. Hisce cognitis, nec Figura Syllogismi, nec Modus latebit; qui si legitime, nec tamen vere concludere videatur, quærendum annon anceps sit aliquis trium Terminorum? nam si in iis nulla lateat ambiguitas, necessario falsa erit altera Præmissarum.

Hunc in modum licebit Syllogismum quemvis Categoricum purum explorare: qualis si non sit qui proponitur, quam facillime fiet, per ea quæ priore Libro, extremo Capite tertio, et toto quarto sunt ostensa. Siquid amplius restet, id exemplis melius quam præceptis docebitur.

§. 2. **ORDIEMUR** autem a facillimis; nempe veterum Sophistarum *Fallaciis*; quarum

13 species enumerat Aristoteles: sex, quæ *multiplicitate dictionis*; septem, quæ aliquo *extra dictionem* vitio laborarent. Et erat aliqua fortasse difficultas in earum aliquibus, juxta veterem disputandi (h. e. interrogandi) morem propositis; sed profecto nemo tam obtusus est, qui non easdem Syllogistice propositas agnoscat statim, et derideat. V. g. Erit fortasse qui rogatus *Quod non amiserit utrum habeat necne?* non intelligat se captum iri, sive simpliciter habere se, sive non habere responderit: at proposito hujusmodi Syllogismo, *Quod non amisisti habes; Cornua non amisisti; Ergo habes*: Vel *Quod non amisisti non habes; Oculos non amisisti; Ergo non habes*; quid reponat nemo non videt.

Fallaciæ *dictionis*, sive *in dictione*, sex sunt.

§. 3. 1. FALLACIA *æquivocationis*, sive nata ex voce *æquivocâ*: ut, *Canis est animal; Sirius est canis; Ergo, Sirius est animal*. In hoc quatuor sunt termini; quorum duo, vox *Canis* *æquivoce* sumpta.

2. Fallacia *amphiboliæ*; sive nata ex sententiâ *amphibolâ*, h. e. ancipitis structuræ; ut *Quod tangitur a Socrate illud sentit; Columna tangitur a Socrate; Ergo Columna sentit*. Vox *sentit*, non sponte, sed in hac structurâ est am-

bigua; cujus vi, in Majori significat *Sentit Socrates*; in Conclusionē, *Sentit Socratem*: Quare Syllogismus habet quatuor terminos.

3. et 4. Fallacia *Compositionis*, ubi datum in sensu diviso sumitur in sensu composito: ut, *Duo et Tria sunt Par et Impar: Quinque sunt Duo et Tria; Ergo Quinque sunt Par et Impar*. Fallacia *Divisionis*, quando datum in sensu composito sumitur in divisio; ut, *Planetæ sunt septem: Sol et Luna sunt Planetæ; Ergo Sol et Luna sunt septem*. Utroque modo quatuor sunt termini si aperte loquaris. V. g. Prioris Syllogismi mens est, Duo et Tria seorsim accepta sunt Par et Impar; Quinque sunt Duo et Tria in unum composita, &c. Posterioris vero, Planetæ collective sumpti sunt septem; Sol et Luna sunt Planetæ distributive sumpti &c. Unde duplex utrobique Medius.

“Huc referri solent hujusmodi Orationes;  
 “*Possibile est album esse nigrum; Possibile est*  
 “*sedentem stare*: dubito an satis recte; quia  
 “tanto acumine non est opus. Potest quidem  
 “album fieri nigrum; et Possibile est *sedenti*  
 “*stare*; at si hæc velles, incongrue locutus es.  
 “Utraque igitur Oratio est simpliciter ne-  
 “ganda; vel ut aperte falsa si sit congrua, vel  
 “si non sit congrua, quia non est Propositio.”

5. Fallacia *Accentus* seu *Prosodiæ* potius, quando pro eodem sumuntur quæ vel Litera,

vel Spiritu, vel Tempore, vel Accentu sunt diversa: ut, Est *servus*, Ergo est *cervus*; Est *ara*, Ergo est *hara*. Est *malum* (an apple), Ergo *malum* (an evil). Venatur *lépores*, Ergo et *Lepóres*; quibus qui falli potest, debet.

6. Fallacia *Figuræ dictionis*, quando propter dictiones similes, quod de uno datur de altero arripitur: idque vel *Grammaticæ*, ut *Musa* est Fœminini generis, Ergo et *Poeta*: vel *Logice*, ut *Docere est agere*, Ergo et *Videre*. Hæc *Materia* potius quam *Forma* peccat: et operose solvi non postulat: ponit aliquid aperte falsum; quo negato evertitur.

Fallaciæ *extra dictionem* sunt septem.

§. 4. 1. **FALLACIA *Accidentis***; quando *accidentarium* aliquod confunditur cum eo quod est *essentiale* seu principaliter intentum: ut, *Quod emisti comedisti*, *Crudum emisti*; Ergo *Crudum comedisti*: in quo *Quod emisti*, et *Quale emisti*, confunduntur; unde quatuor termini.

2. Fallacia a *Dicto secundum Quid ad Dictum Simpliciter*; quando proceditur a voce determinate sumptâ, ad eandem absolute positam: ut, *Æthiops est albus dentes*; Ergo *albus*: unde quatuor esse Terminos necesse est.

3. Fallacia *Ignorationis Elenchi*. *Elenchus* proprie Syllogismus est adversarium redargu-

ens; confirmando scil. quod illius sententiæ contradicit. Quare in hanc incidit Fallaciam qui se putat adversarium redarguere, non servatis *Contradicendi Legibus*, (de quibus vide pag. 92.) Qui in his peccat, docendus est se nescire Quid sit Contradicere.

4. Fallacia *a non-causâ pro causâ*; sive sit a *non verâ pro verâ*; sive a *non-talî pro talî*: ut *Cometa fulsit*; Ergo *Bellum erit*; Nullo modo; nam si fuerit, aliis de Causis futurum est. *Quod inebriat prohibendum est*; *Vinum inebriat*; Nequaquam vero, sed Abusus vini. Hæc Fallacia bene solvitur negando Causam falsam; melius, adducendo germanam.

“Huc refertur ab aliquibus (quâ de causâ “non video) hoc Sophisma; *Qui magis esurit,* “*plus comedit*; *Qui minus comedit, magis esurit*; Ergo *Qui minus comedit, plus comedit.* “Sed qui hoc, vel hujus simile attulerit (ut in- “numera afferri solent) docendus est congrue “loqui: Hoc si fecerit dicet in hoc casu, *Qui* “*magis esurit plus comedet*; *Qui minus comê-* “*dit, magis esurit*; Ergo *Qui minus comêdit,* “*plus comedet.*”

5. Fallacia *Consequentis*, quando inferitur quod non sequitur: ut, *Animal est*; Ergo, *Est Homo*. Hic memineris, quod si recte ratione uti volumus, Consequentia aut directa, immediata, formalis, aut plane nulla est; peccat

enim contra aliquam Dialecticæ regulam; ad quam si provocas, refelletur.

6. Fallacia *Petitionis Principii*, cum ut datum assumitur, quod probatum oportuit. V. g. Cum probatur aliquid vel per seipsum, (quæ vocatur *Petitio statim*,) ut, *Homo est, Ergo, est Homo*: Vel per Synonymum; ut *Ensis est acutus*; Ergo, *Gladius*: Vel per æque ignotum; ut *Hic est Pater Melchisedek*; Ergo, *Hæc Mater*: Vel per ignotius; ut, *Hoc Quadratum est hujus Trianguli duplum*, Quia *huic Circulo æquale*: Vel per Circulum; resumendo scilicet quod relictum est; ut si diceres, *Ignis est calidus*, Ergo *urit*; et post pauca, *Ignis urit, Ergo est calidus*.

7. Fallacia *plurium interrogationum*, quando plures quæstiones velut una proponuntur; v. g. *Suntne Mel et Fel dulcia? Estne homo animal et lapis?* Evertitur, ad singulas quæstiones distincte respondendo; sicut fecit Menedemus Eretriensis qui roganti eum Alexino, *Numquid Patrem verberare desiisset? Nec verberavi*, inquit, *nec desii*.

Atque hæ sunt tredecim Sophismatum formulæ Veteribus usitatiores, quæ Tironibus Logicis in exemplum proponi solent. Poterant esse pauciores; nam videntur aliquæ coincidere; et præterea tres, *Non-causa pro Causa*, *Petitio Principii*, et *Plures interrogationes*,

non sunt Fallaciæ proprie dictæ, h. e. Syllogismi Formâ peccantes; sed Vitia male Opponentis. Poterant et plures; sed cum hic numerus Aristoteli satisfacisset, idem omnibus post illum Logicis satisfacit.

§. 5. SOPHISMATIBUS ex sententiâ veterum accensendæ sunt *Inexplicabiles* (ut vocantur) *Rationes*, quas Megarici, Stoici, alique Eristicam professi, propriis nominibus insignivere, *Crocodilus*, *Mentiens*, *Obvelatus*, &c. quas plerasque collegit Gassendus, et retulit in *Libro de Origine et Varietate Logicæ*: Nos eodem fere ordine explorabimus quo ab illo sunt propositæ.

1. ACHILLES vocatur Argumentum quo usus est Zeno Eleates, non ut Motum tolleretur, quod vulgo sed falso dicitur; sed ut ostenderet Continuum non esse infinite divisibile, quia hoc dato Motus tolleretur. Argumentum sic se habet. Sit Achilles quantum voles *ποδας δυνς*, puta decuplo velocior Testudine. Quiescente illo, confecerit Testudo partem aliquam (puta decimam) spatii percurrendi. Tum procedat Achilles, idemque spatium percurrat: progredietur interim Testudo per partem ejus decimam, h. e. totius spatii centesimam; hanc conficiat Achilles, et percurrat interim Testudo hujus centesimæ decimam; et sic de-

inceptis in infinitum; quo fiet ut Achilles nunquam assequatur Testudinem.

Ineptum est hoc Sophisma. 1. Quia solvitur ambulando; quod fecit Diogenes. 2. Quoniam ex ipsâ Hypothesi, dum Testudo quæ præcessit spatio A, conficit  $\frac{1}{2}$  A, Achilles conficiet 2 A; adeoque statim assequetur eam, et antecedit. Sed hoc (inquies) in casu proposito nunquam fiet; Recte; Ne enim fiat, in ipso proponendi modo clam inseritur nova conditio. Nam 3. Argumentum aliis verbis hoc dicit; Si Achillem decuplo velociorem præcesserit Testudo; et *uterque meo pergat arbitratu*; Ego perficiam ne Achilles assequatur Testudinem: Quare prorsus nunquam assequetur. Quæ est *Fallacia a dicto secundum quid, ad dictum simpliciter*.

2. Diodorus Cronus, quod Sophismata Stilponis non solvisset, exinde *ὄν* appellatus est; id cognominis aliunde promeritus, quod ad hunc modum contra Motum disputaret. *Mobile movetur vel in quo est loco, vel in quo non est; At neutrum horum; Ergo Non omnino*. Unde facete illum lusit Herophilus, qui ut luxatum illi humerum restitueret rogatus, *Tuus* (inquit) *humerus vel in quo erat loco existens excidit, vel in quo non erat. Sed neutrum horum; Ergo non omnino*. Diodori argumento breviter et perspicue respondet Gassendus, *Quod movetur moveri a loco in quo erat, per*

*locum* in quo est (sive quem pertransit), *ad locum* in quo nondum est, sed futurum est.

3. RECIPROCUM vocat Argumentum *Gel- lius*, quod Græce dicitur Ἀντιγέγον: cui illustrando conficta est Fabula quæ Græcorum vanitatem olet. Narrant enim inter Protagoram et Euathlum, vel (ut facetiæ locus sit) inter Coracem et Tisiam convenisse, ut hunc ille Dialecticam doceret; idque hæc lege, ut dimidium mercedis statim acciperet; reliquum, cum discipulus causam vicisset. Primam exinde litem cum Discipulo contestatus est Magister, cum mercedis reliquum lege peteret, apud Judices vero sic agebat: *Ego si vicero, Tisia, Tu solves ex sententiâ, sin minus, ex pacto; utroque igitur modo solvendum est.* Respondit Tisias, *Ego nihil solvo; Tu si viceris, ex pacto; sin minus, ex sententiâ.* Tanto utrinque acumine perculsi boni iudices, exclamarunt Κακοῦ Κόρακος κακὸν δόν, causamque in longissimum diem distulerunt.

Ineptum erat Coracis Dilemma quia potuit tam bene retorqueri. Nihilominus callide agebat, si id Judices vidissent. Nam cum mercedem inique peteret, causâ cadere debebat; Quamprimum autem cecidisset, ei merces ex pacto debebatur.

§. 6. 4. MENTIENS qui est Græce Πseudόμενος, Chrysippi Syllogismus ne ab ipso quidem so-

latus, præter cæteros insolubilis habetur. Eum Cicero sic enuntiat: *Si dicis te mentiri, et verum dicis, mentiris; Sed dicis te mentiri, et verum dicis; mentiris igitur.*

Congrue loquere, Chrysippe, et intelliges te vel nihil prorsus, vel nihil dicere difficile. Qui se dicit *mentitum*, et verum dicit, *mentitus est*; Qui *mentiturum*, *mentietur*. Horum utrumque verum est, et nemini obscurum; Sed qui ut verum simul dicat et mentiatur dicit unum aliquid, cujus partes sibi invicem contradicunt, is nec verum, nec falsum, sed omnino nihil dicit: quando enim sententiæ pars una evertit alteram, tota nihil prorsus significat, sed inaniter strepit.

Subtilius disputare videbantur qui sic agebant: *Cretenses esse mendaces dicit Epimenides Cretensis: Mentitur igitur; Ergo Illi sunt veraces; Ergo et Ille verum dicit; Ergo Illi rursus sunt mendaces &c.* Sed profecto nihil stultius est hoc argumento, nisi vox *Cretenses* eos ad unum omnes significet, et omnis mendax quicquid dicit mentiatur.

Videtur hic *Mentiens* peperisse subtilem illam Scholasticorum *de Insolubilibus* doctrinam. "Nam talia argumenta (inquit *Occam*) non possunt fieri nisi quando actus humanus respicit istum terminum *Falsum*, vel aliquem consimilem affirmative; vel hunc terminum *Verum*, vel aliquem consimilem negative."

Esse hæc *Sophismata* ante dixerat; nec vocari *Insolubilia*, quia nullo modo solvi possunt, sed quia cum difficultate solvuntur.

Insolubilis exemplum sic proponitur. Incipiat Socrates sic loqui, *Socrates dicit falsum*; et nihil amplius loquatur: tum interroget aliquis, utrum vera an falsa sit hæc propositio. Respondeo, nec veram nec falsam esse, sed nihil significare, nisi aliquid aliud respiciat, quod a Socrate ante dictum supponitur. Qui enim profert hæc verba, *Socrates dicit falsum*, fert iudicium de dicto Socratis; quique fert iudicium, necessario præsupponit aliquid de quo iudicet: Unde cum sententia præsupponat objectum suum, clarum est eandem numero propositionem, et sententiam et ejus objectum esse non posse. Quare et Scholarum subtilitas hic nihil proficit; nihilque opus est plura dicere de Insolubilibus.

5. FALLENS *Διαλανθάνων*, vel ut alii *Διαλελθών*, de Juramento ludit sicut *Mentiens* de nudâ affirmatione. E. g. *Qui jurat se falsum jurare et falsum jurat, vere jurat*. Quare eodem fere modo quo *Mentiens* explicatur.

§. 7. 6. et 7. OBVELATUS, alio nomine ELECTRA, est *Fallacia a dicto secundum Quid, ad dictum Simpliciter*. Nam colligere pertendit, quod et Patrem Filius et Soror Fratrem, h. e.

Electra Orestem *prorsus* nesciat, si eundem *velo abductum* se nescire fateatur.

8. et 9. ACERVALIS et CALVUS, sunt ejusdem Sophismatis duo tantum exempla. V. g. Si rogatus a sophistâ, neges te *Calvum* fieri amisso crine uno, duobus, tribus, et sic deinceps ad 99, sed amissis centum concedas; vel eodem modo neges 99 grana *Acervum* esse, centum autem esse fatearis; concludet ille grano unico adjecto *Acervum* fieri; crine unico amisso, *Calvitiem*. Facile autem respondetur, *Unum centesimum* non esse *Unicum*; nam est *Unum* cum nonaginta novem. Vel si mavis sic; Fit *Acervus*, grano uno, sed adjecto; adeoque non unico, sed cum pluribus aliis. Fit *Calvities* crine uno, sed post multos alios, amisso.

10. CORNUTUS et *Ceratinus*, *Ceratine*, *Ceratis*, et *Ceras* dicitur Sophisma illud ante memoratum, *Quod non amisisti habes* &c. Quæ est *Petitio Principii*; nam supponit te cornua habuisse.

Ineptissima hæc Fallacia plus acuminis præfert juxta veterem disputandi modum rogando proposita. Erit enim fortasse, qui rogatus, *Quod non amiserit, utrum habeat necne?* non intelligat se captum iri, si simpliciter respondeat; sive habere se, sive non habere dicat. Nam eum adiget sophista, ut vel se habere Cornua, vel non habere Oculos fateatur.

11. Acutus sibi videbatur Menedemus (Eretriensis scil. quem ἐρετριώτατον appellat Laërtius) quum ad hunc modum nugaretur. *Diversum, a Diverso Diversum est; Prodesse est a Bono Diversum; Prodesse igitur non est Bonum. Quæ est crassa et putida Æquivocatio; et nihil amplius.*

§. 8. 12. CROCODILUS a Chrysippo inventus, qui ad Fallaciam Consequentis revocari poterit, sic proponitur. *Surripuerat infantem Crocodilus; redditurum se, hac lege pollicitus, ut divinet mater, utrum apud se reddere an non reddere constituerit.* Si dicat mater, *Non reddere;* mentietur si infantem receperit: Si dicat *reddere:* non reddet quia hoc est falsum. Quamobrem Chrysippus nihil esse putat difficilius quam responsum matri suggerere. Nec injuriâ, si lubricum putet divinare; sed immerito, si in hoc (ut videtur) hæreat, Quod si puerum Crocodilus non reddere constituerit, quamvis id Mater divinaverit non reddet: quasi consilium quod primum intenderat Crocodilus, postquam indicatum est, repudiare non possit, et ex pacto non debeat: nam si Mater recte divinaverit, recepto puero, non mentitur illa, sed consilium mutat Crocodilus.

13. METENS Θερίων qui vocatur, ita placuit Zenoni Stoico, ut Sophistæ a quo eum didicerat duplum pactæ mercedis numeraret. Propo-

nente Ammonio sic se habet: *Si messurus es, non fortasse metes, fortasse non metes, sed metes omnino; Pariter, si non messurus es, non fortasse metes, fortasse non metes, sed prorsus non metes: Atqui vel metere te, vel non metere, necessarium est; perit igitur Fortasse, quod in neutra hypothesis locum habet. Fortunatum Sophistam! qui mercede duplâ hunc fumum vendidit; Vel hoc, vel illud evenire est necesse; Quare hoc et non illud necessario eventurum est. Nihil amplius dicit qui sic dixerit, Ut vel metas vel non metas est necesse; Ergo Vel necessario metes vel necessario non metes. Breviter, hæc Fallacia Divisionis est; nam in Antecedente, Modus Necessario, non tribuitur nisi toti Disjunctivæ; sed in Consequente dicitur de eisdem membris seorsim acceptis.*

14. IGNAVA RATIO vel ἄγρὸς λόγος appellatur, qui si valeat nihil est omnino quod agamus in vita. V. g. *Si Fatum est ægroto convalescere, sive medicum adhibuerit sive non adhibuerit, convalescet: Pariter, si illi Fatum est non convalescere sive medicum adhibuerit, sive non adhibuerit, non convalescet: et alterutrum Fatum est, medicum ergo adhibere nihil attinet. Lepide respondit Chrysippus posse esse Confatalia adhibere medicum et convalescere: Quemadmodum et Zeno, quando servum furum verberabat, Furari sibi Fatum esse dicenti, et Vapulare respondit. Sed commodius dici*

videtur, Si sit Fatum, hoc valere argumentum; idque vel solum sufficere ne Fatum esse concedamus. Argumentum hocce et quæ præcedunt pp. 239, 240. N°. 2. et 3. ex Dilemmatis legibus facile solvuntur.

§. 9. **PLURA** sunt apud Autores Inexplicabilium Rationum nomina; quorum exempla Gassendus quia nusquam invenisset, ipse reperit. Verum ea relinquimus studiosis; quibus etiam consulto est relictum, ut quæ sunt hactenus explicata, illi explicent in Syllogismos conversa. Exempla Gassendi ne desiderarent qui libro carent, non pigebit exscribere.

*Dominans* Κυριεύων. Themistoclis filius nec Græcis imperat, nec de imperando cogitat; Verum imperat Matri, quæ imperat Themistocli, qui Græcis imperat; *Dominatur* itaque Græcis, *et non-dominatur*.

*Conficiens* Πηγαιών. Multum itineris *conficit*, *et non conficit* Canis, qui in rotâ gradiens totum diem, ex eodem tamen loco non recedit.

*Superpositus* vel *Superlativus* ὑπερθετικὸς, Soriti forte affinis; Ut si roges quota sit palea, quæ si mulo *super-imponatur* ille oneri succumbat?

*Nullus* Οὐδείς. Homo in communi nec est hic, nec ille, nec alius homo singularis, Ergo *Nullus*. Vel ut tritum Sophisma: *Quod Ego sum, Tu non es; Ego sum homo; Ergo Tu non*

es. Vel denique ut Chrysippus: *Qui est Megaris, non est Athenis; Homo est Megaris; Ergo Homo non est Athenis.*

Subjicit Gassendus ex Laërtio has Chrysippi Rogatiunculas. 1. Qui non initiatis indicat mysteria, impie agit. Sed hoc facit Hierophantes; *Ergo* Impie agit. 2. Est quoddam caput; Id tu non habes; *Ergo* Caput non habes. 3. Id quod loqueris ex ore tuo egreditur: Currum loqueris; *Ergo* Currus ex ore tuo egreditur.

§. 10. NON temperaturos sibi juvenes satis scio quin dissiliant risu, ubi hæc tam futilia intellexerint a gravissimis philosophis serio fuisse proposita; et veteribus adeo difficilia haberi, ut Philetas Cous præceptor Ptolemæi Philadelphi solius *Mentientis* explicandi studio confectus interierit. Quamvis autem Aristotelis beneficio, videantur ista ut sunt levis, in iis tamen prompte atque artificiose solvendis non inutiliter sese juvenes exercebunt: nam in gravissimis disputationibus, hæc eadem recocta Novæ præsertim Philosophiæ cultores sæpissime reponunt.

V. g. Gassendus Vacuum quod appellat *disseminatum* eodem fere Sophismate demonstrare pertendit, quo olim Zeno *contra motum* utebatur: Suamque *Hobbius* de *Necessitate* sententiam iisdem propugnat Fallaciis quibus *Fa-*

*tum* Stoici: aliaque plurima hujus generis, quæ sunt nobis prætereunda, studiosis inter legendum occurrent.

Fefellit Virum satis alias perspicacem hæc sequela, quæ in ambiguis distinguendis versatum minime (opinor) fefellisset; *Possum datæ peripheriæ trientem exhibere; Possum igitur datam peripheriam trisecare*; cujus falsitatem ipsa praxis redarguit; neque enim trientem exhibuit, sed alterius circuli peripheriam trienti parem: h. e. non *trientem* ipsum, sed *trientis valorem*: Paria fecisset qui, oblatum sibi solidum trisecturus, ne attrectato quidem solido porrexisset drachmam.

§. 11. **VOLENTEM** hic desinere pungit scrupulus, qui nonnullos hodie Mathematicos male habet. Nam in demonstrationibus quibusdam, conclusionem ex sui contradictoriâ, per legitimas necessariasque consequentias directe inferri volunt. Quod si ita sit, miror a Veteribus, præsertim Scepticis non fuisse animadversum; quippe hoc dato tota ruat Logica necesse est.

Dicunt tamen Theodosium demonstrasse quod *si Maris superficies non est Sphærica, est Sphærica*. Verum ille nihil tale demonstravit; sed tantum Maris superficiem *si nondum esset, fore Sphæricam*: siquid enim emineat (inquit)

illud statim, ex naturâ humidi, subsidet: Unde si Maris superficies sit (ut non est) inæqualis, *ſet* perfecte Sphærica.

Videamus aliud Exemplum. Sunto numeri duo inæquales, et inter se primi; Dico quod eorum differentia ad minorem prima est. *Esto enim numerus aliquis qui metitur minorem; idemque metiatur differentiam: Ergo metitur eorum summam; Ergo metitur majorem, huic summæ parem; Ergo non metitur minorem.*

Possum hoc loco dicere quod mendose colligitur: siquis enim numerus minorem metiatur ex supposito, et majorem ex demonstrato; colligendum erat *datos esse inter se compositos, quod est contra Hypothesin.* Verum ne pluribus exemplis sim molestus, malo generale responsum. Dico igitur, quod nulla hujusmodi demonstratio supponit solam suæ conclusionis Contradictoriam; sed quælibet cum Contradictoriâ ponit aliquid quod eam evertit; et evertere, demonstrando ostendit. Quare conclusionem non infert ex ejus Contradictoriâ; sed ex Contradictoriâ cum Contradictoriæ eversivâ: quod si faciat nihil mirum. Nam Si *Socrates v. g. est homo, et irrationalis*, tum Si *est homo, non est homo*: Et Si *Socrates est mortuus, et scit se esse mortuum*, tum Si *est mortuus non est mortuus*: Et Universaliter, Si *et hæc est vera et quæ hanc evertit*: tum Si *hæc est vera, non est vera*: qui-

bus omnibus inest una quæ est prorsus nulla difficultas. Ubi enim Hypothesis evertit suppositionem, quidni ex Hypothesi sequatur, quod suppositioni contradicit?

# PROMISCUOUS SYLLOGISMS

FOR EXERCISE.

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## FIRST SERIES.

*Categorical Syllogisms.*

1.

**SATIRE** is a legitimate mode of exposing the failings of others; the calling others by ill names is not satire: consequently it is not a legitimate mode of exposing their failings.

2.

A tyranny is inconsistent with the liberty of the subject; but the English government is not inconsistent with the liberty of the subject: and this undeniable fact affords a sufficient evidence that the English government is not a tyranny.

3.

True poets are formed by nature, and not by art; but paltry rhymesters compose according to art, and not by the impulse of nature: consequently paltry rhymesters are not true poets.

4.

Every amiable man merits the esteem and respect of his neighbours; now it is also certain, that all whose pure aim is to do good to their fellow-creatures merit the esteem and respect of their neighbours: whence we must necessarily infer, that all whose pure aim is to do good to their fellow-creatures are amiable men.

5.

Liberality is the means of making many happy ; it is not, however, the way to become rich : so that that which is the way to become rich is not the means of making many happy.

6.

An art is a collection of rules tending to a certain end ; rhetoric is a collection of rules tending to a certain end : therefore rhetoric is an art.

7.

The saying is no less true than common, that murderers never escape punishment ; yet even murderers hope to elude the laws of their country : of those therefore who hope to elude the laws of their country, some do not escape punishment.

8.

No amiable man should be despised ; every man in whom are united virtue and politeness is amiable : some therefore of those happy persons in whom these two excellent qualities are united ought not to be despised.

9.

Every man of solid understanding lives virtuously ; every true Christian lives virtuously : therefore every true Christian is a man of solid understanding.



10.

No diligent student should be deprived of just commendation ; every diligent student abstains from idleness and trifling amusements : therefore no one who abstains from these should be deprived of just commendation.

11.

A wise and affectionate parent governs his family uprightly ; he is worthy of love and honour who governs his family uprightly : therefore a wise and affectionate parent is worthy of love and honour.

12.

Those things which cannot be enumerated do not exist; innate ideas cannot be enumerated; therefore innate ideas do not exist.

13.

The cook is always about the fire; the fire is the highest of all the elements; therefore of all sciences the cook's occupation is the highest.

14.

He who seeks the best end in the use of the most suitable means is wise; he likewise is wise who applies his learning to the purposes of life and the welfare of society: therefore he who applies his learning to the purposes of life and the welfare of society seeks the best end in the use of the most suitable means.

15.

The testimony extorted from a reluctant witness is likely to be true; the testimony of an enemy is thus extorted, and is consequently likely to be true.

16.

Hatred is an odious vice; but alas! there are many odious vices which are not abhorred as they deserve; which circumstance evinces the fact that hatred is not abhorred as it deserves.

17.

Some works of art are useful; all works of human invention are works of art; therefore some works of human invention are useful.

18.

All books of literature are, it must be acknowledged, subject to error; now the fact is, that they are all of man's invention: consequently we are compelled to draw the painful inference, that all things of human invention are subject to error.

Z

19.

All who are endued with prudence are worthy of credit and confidence; no madmen or enthusiasts are endued with prudence: it is manifest then that no madmen or enthusiasts are worthy of credit and confidence.

20.

None of the brute creation are immortal beings; but all immortal beings have the power of motion: therefore some things which have the power of motion are not of the brute creation.

21.

A decorous conduct is the part of true wisdom; it is also the part of true wisdom to discountenance foolish innovations: therefore to discountenance foolish innovations is a decorous conduct.

22.

A furious bull is a dangerous animal; Luther was attacked by a furious bull: therefore Luther was attacked by a dangerous animal.

23.

Love is a passion; my brother Joseph is in love: therefore he is in a passion.

24.

All the helots were slaves; all Athenians were free: therefore it follows that no Athenians were helots.

25.

A natural property cannot be altered by habit; to fall downwards is the natural property of a heavy body: therefore a heavy body cannot be habituated to fall upwards.

26.

Every prudent man is anxious to support the authority of government; no seditious subject is an-

xious to support it: therefore it is demonstrated that no seditious subject is a prudent man.

27.

A language which is composed of several other languages possesses more copiousness than elegance; but such is the English language as now spoken: the English language therefore as now spoken possesses more copiousness than elegance.

28.

To kill a man is a sin; a murderer is a man; to kill a murderer is consequently a sin.

29.

He who is assiduous in surmounting difficulties is deserving of respect; now Demosthenes displayed unwearied assiduity in correcting the natural defects of his speech, and in fact became the greatest orator of Greece; on these accounts therefore he was a man deserving of a high degree of respect.

30.

That which excites a passion precedes it; insult excites anger; insult therefore precedes anger.

31.

Every mean artifice should be exploded from the dealings of men of honour; now equivocation is undoubtedly a mean and ungenerous artifice; as such therefore it ought by no means to be admitted among persons of probity.

32.

There are things which though confessedly liable to change, and therefore imperfect, are yet useful; some parts of the Mosaic law were liable to change, and therefore imperfect; therefore some parts of the Mosaic law were useful.

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## 33.

It is noticed by Aristotle, that all animals which possess fortitude have the extremities of their limbs large ; but animals possessed of fortitude disregard the insults of inferior creatures ; therefore all animals characterized by large extremities disregard the insults of inferior creatures.

## 34.

Self-murder must be condemned as a most heinous offence ; yet there are species of voluntary death which cannot be justly denominated by that opprobrious name of self-murder : it is to be inferred then, that there are species of voluntary death which are not necessarily to be condemned as heinous offences.

## 35.

Suicide is not defensible on any principle of morality ; some species of voluntary death are not suicide ; therefore some species of voluntary death may be defended on the principles of morality.

## 36.

Some of the primary planets are distinguished by the name asteroids ; but the Sun, the Moon, the Earth, and Saturn, are not called asteroids : consequently they are not primary planets.

## 37.

Some virtuous men have made gross mistakes ; all who live uprightly are virtuous men : some consequently who live uprightly have made gross mistakes.

## 38.

Every real Christian walks circumspectly ; some who profess to be Christians do not so walk : therefore some who profess to be Christians are not really such.

39.

Some virtuous persons enjoy much hilarity of disposition; all virtuous persons are temperate: therefore all temperate persons enjoy much hilarity of disposition.

40.

That which incurs the hatred of the many is not therefore proved to be necessarily bad; the softer virtues, as justice, temperance, and liberality, do not incur the hatred of the many: these virtues therefore cannot be proved to be bad.

41.

Those things which depend on accident do not admit of demonstration; mathematical conclusions admit of demonstration: therefore mathematical conclusions are not accidental.

42.

Some there are who refuse to indulge themselves in unlawful pleasures; all men are naturally inclined to unlawful pleasures; therefore some who are naturally so inclined refuse to indulge themselves in them.

43.

The acquisition of every science which is of any real benefit among men requires attention and diligence; but every science has many difficulties, which cannot be overcome except by perseverance: therefore some things which have difficulties such as cannot be overcome but by perseverance, and which require diligence and attention, are useful sciences, and of real benefit to men.

44.

The attainment of the utmost extent of learning is an object of universal desire; yet such an acqui-

sition will not render a man happy or virtuous : it appears then that that which will not render a man happy or virtuous is an object of universal desire.

45.

It is prudent to employ our thoughts about fundamental truths ; for our life is short ; and such ought surely to be the aim of those who have no long time in which to acquire an acquaintance with any truths.

46.

Every wise and prudent man abstains from unlawful pleasures ; all who obey the divine law abstain from unlawful pleasures ; all who obey the divine law are wise and prudent men.

47.

All Englishmen are lovers of liberty ; no Dutchman is an Englishman : therefore no Dutchman is a lover of liberty.

48.

Some heathen authors deserve credit ; some heathen authors relate prodigies : therefore some prodigies deserve credit.

49.

Nothing shameful or disgraceful should be allowed to taint the practice of a man of honour ; no fraud of any kind should be allowed to taint such a man's practice : therefore every fraud is shameful and disgraceful.

50.

Some good men maintain erroneous sentiments ; all heretics maintain erroneous sentiments : therefore some heretics are good men.

51.

All acts of parliament require the concurrence of the king, lords, and commons; orders in council are not acts of parliament: therefore orders in council do not require the concurrence of the king, lords, and commons.

52.

There are cheap books, the object of which is to sap the foundations of government; the new editions of the classics are cheap books: those editions therefore have for their object to sap the foundations of government.

53.

All the public buildings in Oxford lose some portion of their splendor and dignity by the appearance of decay; in fact, those buildings are all built of a kind of inferior oolite: therefore all buildings constructed of that inferior oolite lose some portion of their splendor and dignity by the appearance of decay.

54.

Some of the basest of men do not discover to the world their true character; all who do not discover to the world their true character are hypocrites: therefore some hypocrites are the basest of men.

55.

It cannot be denied by any reasonable person, that *some* even of those who are justly denominated *wise men* have in the course of their life committed *great errors*; nor is it less universally admitted, that *they who unite learning with experience* are truly deserving of the character of *wise men*: the necessary inference then is most evident, namely, that however decisive and almost infallible we are apt to suppose their testimony to be in any matter of prudence and judgment, *there* yet have been, and

*still doubtless are, persons uniting learning with experience, who have notwithstanding committed great errors.*

56.

They who are not to be trusted are always liable to suspicion ; liars are not to be trusted ; liars are always liable to suspicion.

57.

No traitors ought to be suffered to escape condign punishment ; nor should those men be suffered to escape condign punishment who excite their fellow-subjects to rebellious actions ; therefore they who excite their fellow-subjects to rebellious acts are traitors.

58.

No science is to be acquired without some degree of serious application ; some things essential to the welfare of society are sciences ; some things therefore essential to the welfare of human society are not to be acquired without some degree of serious application.

59.

Subjects are under obligation to obey their king ; George the Fourth is the king of England ; therefore Englishmen are bound to obey George the Fourth.

60.

Whatever is in its nature quite immaterial deserves no particular concern ; the soul of man is immaterial ; therefore the soul of man demands no particular concern.

61.

There are hopes entertained by many which must terminate in disappointment ; some hopes in fact

evidently rest on an insufficient foundation ; some things therefore which rest on an insufficient foundation must terminate in disappointment.

62.

All stars are suns of other systems ; but all suns of other systems (as well as our own) are stationary globes of fire ; consequently all stationary globes of fire are stars.

63.

Some heavenly bodies which are not stationary are planets ; comets are of that description ; it follows then that comets are planets.

64.

Whatsoever merits any degree of commendation must proceed from some other cause than mere weakness ; some instances of good nature however do not proceed from any principle besides weakness ; therefore there are instances of good nature which do not merit any degree of commendation.

65.

Every man who knows the value of time will be unwilling to waste it in the pursuit of trifles ; all those are guilty of this folly who employ their days in light reading to the neglect of such works as may tend to instruct and form the mind ; such persons therefore must be acknowledged to be ignorant of the value of time.

66.

A government which supports the traffic in slaves persists in an offence against religion and virtue ; our own government has put an end to that traffic ; it does not therefore persist in any offence against religion and virtue.

67.

Some of the most splendid virtues are often tarnished by their union with baser principles ; fortitude is one of the most splendid virtues ; fortitude therefore is often tarnished by its union with baser principles.

68.

No metals have a vegetative power ; yet some things which have a vegetative power are discovered beneath the earth ; therefore some things discovered beneath the earth are not metals.

69.

Every real Christian is happy ; some real Christians are neither learned nor valiant ; hence some who are neither learned nor valiant are happy.

70.

Some innovations are productive of general benefit ; no change in the structure of the British constitution would be productive of general benefit ; so that no change in the structure of the British constitution would be an innovation.

71.

No departure from the dictates of true wisdom can promote the public good ; some innovations can promote the public good ; some innovations are not departures from the dictates of true wisdom.

72.

Most of those who are much occupied in subterraneous occupations are unhealthy ; all miners are much occupied in subterraneous occupations ; therefore all miners are unhealthy.

73.

Nothing inconsistent with virtue can be ultimately beneficial either to states or to individuals ; lotteries

are inconsistent with virtue; therefore lotteries cannot be ultimately beneficial either to states or to individuals.

74.

Some well-meant endeavours are not consistent with judgment and prudence; yet all well-meant endeavours merit some degree of approbation; therefore some things which merit a degree of approbation are not consistent with judgment and prudence.

75.

All Christians believe the soul to be immortal; no Christians are Hindoos; therefore no Hindoos believe the soul to be immortal.

76.

All minerals are subterraneous productions; no subterraneous productions are animate beings; therefore no animate beings are minerals.

77.

All responsible beings lie under an obligation to a virtuous life; but the brute creation are not responsible beings; they consequently do not lie under that obligation.

78.

That style is best adapted to didactic writings which is most easily remembered; a concise style answers best to that description; and is in consequence best adapted to such writings.

79.

There are many vices which excite universal indignation; emulation however does not produce such an effect: whence it is evident that emulation is not a vice.

80.

No true philosopher can indulge in impatience and ill-will; Socrates, for instance, never gave way to these vices; therefore Socrates was a true philosopher.

81.

The specimens of the Doric order display an extremely simple style of architecture; the ruins of Stonehenge display an extremely simple style of architecture; therefore, the ruins of Stonehenge are specimens of the Doric order.

82.

All the fixed stars emit light from themselves; several of the heavenly bodies are not fixed stars; therefore several of the heavenly bodies do not emit light from themselves.

83.

Every thing liable to abuse should be carefully checked; some of our most useful and necessary appetites are liable to abuse; therefore some of our most useful and necessary appetites should be carefully checked.

84.

No human virtue is free from imperfection; some human virtues have effected great benefits for mankind; therefore some things which have effected great benefits for mankind are not free from imperfection.

85.

No affluence of fortune or elevation of rank exempts the possessor from the duties of application and industry; for industry is the law of our being; from which those accidents are insufficient to exempt any man.

# PROMISCUOUS SYLLOGISMS

## FOR EXERCISE.

### SECOND SERIES.

#### *Redundant or Defective Syllogisms.*

1.

**FAMILIARITY** is productive of contempt, inasmuch as it occasions a needless exposure of private failings.

2.

The cause of evil (according to the French philosophers) is itself evil; religion (they likewise affirm) is the cause of evil; because it gives occasion to much violence, injustice, and bloodshed; therefore (they infer) religion is an evil.

3.

Correct writers avoid concluding their sentences with a particle; (for a clause so constructed falls weakly on the ears;) but reviewers (since they are compelled to write with great rapidity) are frequently guilty of this fault; consequently they are often not correct writers.

4.

Discord is a greater vice than intemperance; for intemperance implicates but one person; but discord implicates more than one; and that vice which implicates the greater number of individuals is the greater vice.

5.

Discord is not a greater evil than intemperance; for that generally arises from the impulse of anger;

while the latter almost invariably proceeds from forechoice.

6.

They who are not conscious of guilt are not subject to fear; hence thieves are timid; while pure spirits are exempt from any such sensation.

7.

Man should be restrained by laws, because he is an animal subject to selfishness, and other depraved passions.

8.

A young man, being inexperienced in the affairs of life, and too much under the influence of his passions, is not a fit student in moral philosophy.

9.

Sin is hateful, because it is opposed to the divine will.

10.

I think; therefore I am. I am certain that I have existence, because I have the power of thinking.

11.

The study of mathematics so entirely engrosses the mind as to render the science interesting and delightful.

12.

It cannot be denied that classical studies are attended with much solid benefit, if it is duly considered what stores of useful knowledge are contained in many of the writings with which such studies render us acquainted.

13.

It is impossible that any thing should *be* and *not be* at the same time. Now whatever produces itself must *be* and *not be* at the same time; (for it *is*,

because it acts; and *is not*, because it is to be produced;) therefore it is impossible that any thing should produce itself.

14.

A pious woman makes a good parent; a good parent brings up her children virtuously; she who brings up her children virtuously is a useful member of society; a useful member of society is a blessing to a state; that which is a blessing to a state is a fit subject of public gratitude; therefore a pious woman is a fit subject of public gratitude.

15.

The inhabitants of St. Domingo cannot be enslaved; for how can such an event befall a people determined to die rather than to resign their liberty?

16.

A good face is a letter of recommendation; for it greatly prepossesses the beholders in favour of its owner.

17.

The proud man is most bitterly disappointed; he looks for honour, and receives only contempt.

18.

All the brute creation are guided in their actions by instinct, not by reason; consequently instinct and reason are different things.

19.

It is a certain sign of a bad heart to be inclined to defamation; for such an inclination arises from a neglect of what is laudable in a man's self, and an impatience of seeing it in another.

20.

Every thing which is new or uncommon raises a pleasure in the imagination, because it fills the soul with an agreeable surprise, gratifies its curiosity,

and gives it an idea of which it was not before possessed.

## 21.

Virtue has no tendency in itself to provoke others to jealousy; he who is provoked to jealousy by it shews himself possessed of a malignant spirit.

## 22.

The late war has thrown capital into new channels; whatever has this effect produces and extends various profitable branches of commerce: that which thus extends commerce employs capital to great advantage. The effect of this profitable employment of capital has been to raise up a vast population, supported by means which cannot be permanent. That which produces such an effect must ultimately, as experience proves, throw back that redundant population on the public in a state incapable to procure work. This state of things occasions the increase of poor rates, and the artificial mode of supplying through them the deficiency of wages. Such increase diminishes the proper value of property and the means of supporting the population. Hence relief is through necessity withheld from poverty. The continuance of that unrelieved poverty excites discontent; whatever excites discontent promotes a spirit of disaffection to government which is sure to be fostered by insidious demagogues. The whole then of the present distressing state of the country is to be traced back to the war as its cause and origin. (*Report of a speech in the House of Lords, Nov. 30, 1819.*)

## 23.

Sullæ et Cæsaris pecuniarum translatio a justis dominis ad alienos non debet liberalis videri. Nihil est enim liberale quod non idem justum. (*Cic. Off. i. 14.*)

24.

Θαυμαζόν ἔστιν ἑλπίν . . .  
 . . . ἀνδάναι αὐτοῖσι αὐτοὺς καὶ δεκῶν  
 Καλῶς πεφυκέναι· καὶ γὰρ ᾧ κύων κυνὶ  
 Κάλλις ἐμὴν φαίνεται, καὶ βοῦς βοῖ,  
 \*Οἷος δ' ὅτι καλλίστην ἴσιν, ὅς δ' ὄψ.

(Diogen. Laert. ex Epicharmo, iii. 16.)

25.

A wise man is not surprised, because he is not disappointed; and he escapes disappointment because he never forms an expectation.

26.

No men are brutes; all brutes are irrational beings; all irrational beings are free from responsibility; therefore no men are free from responsibility.

27.

It was good policy in the Greeks to resist the subjugation of Egypt by the Persian monarchs, as calculated to endanger their own liberty; for Darius and Xerxes proceeded against Greece after their attacks upon Egypt. So that it was probable any future conqueror of Egypt might follow their example.

28.

Θιωτά χρεὶ τὸν θιωτὸν, ἢκ ἀθάνατα τὸν θιωτὸν φρονεῖν.

29.

All human creatures are rational; all rational beings are responsible; some who are responsible violate duty; therefore some human creatures violate duty.

30.

Some learned men are vicious characters; all vicious characters are injurious to society; all such

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deserve punishment; none who deserve punishment should be treated with honour; therefore some learned men should not be treated with honour.

## 31.

The whole Bible relates to Christ. It commences by displaying man's need of such a Saviour, and is closed with a promise of his second advent. The historical parts trace his descent as man, and contain many things emblematic of him. The ceremonial law typifies him; the moral law seals our ruin without him, and shews us how to testify our love towards him. The Prophets foretel all that relates to him and his church: the Gospels narrate his life: the Acts reveal the power of his grace in the establishment of his church: the Epistles afford the fullest disclosure of his doctrines: and the Revelation sets him forth as the eternal King. Thus Christ is the substance of the Bible.

## 32.

The inviolability of the divine promise requires that the Gentiles should be saved; the salvation of the Gentiles requires their calling on the name of the Lord; their calling on his name requires faith; faith requires the hearing of his word; the hearing of his word requires a preacher; a preacher requires a legitimate and divine mission; therefore the inviolability of the divine promise requires a legitimate and divine mission of preachers to the Gentiles. (*Rom. x. 13, 14, 15.*)

## 33.

The very true beginning of wisdom is the desire of discipline; and the care of discipline is love; and love is the keeping of her laws; and the giving heed unto her laws is the assurance of incorruption; and incorruption maketh us near to God;

therefore the desire of wisdom bringeth to a kingdom. (*Wisd. of Solomon*, vi. 17—20.)

## 34.

An acquaintance with conic sections has been of service in determining and measuring the periodical revolutions of the heavenly bodies; an acquaintance with the courses of the heavenly bodies has given a confidence to navigation; this confidence favours commerce; commerce facilitates exchange; the facility in carrying on an interchange of the productions of human labour encourages the activity of industry; activity and industry, when duly encouraged, render the productions of the earth more abundant; this abundance greatly augments the means of subsistence, (and consequently the population,) and removes privations; men love life and abhor privations; therefore the study of conic sections is useful. (*Fontenelle*.)

## 35.

It was said by the enemies of Themistocles, that it was not he, but his infant son, who governed the world; which they attempted to prove thus: The son of Themistocles governs his mother; his mother governs Themistocles; Themistocles governs the Athenians; the Athenians govern the Greeks; Greece governs Europe; Europe governs the world; therefore the son of Themistocles governs the world.

## 36.

Speech being the great bond which holds society together, and the common conduit whereby the improvements of knowledge are conveyed from one man and one generation to another; it well deserves our most serious thoughts to consider what remedies are to be found for the inconveniencies arising from the abuse of words.

37.

Nunquam est utile peccare, quia semper est turpe: et quia semper est honestum virum bonum esse, semper est utile.

38.

Unjust and cruel man! whoever thou art, whether French, or English, or German, who darest to maintain that we Africans are incapable of civilization;—take up the volume of history: read thine own origin: behold the manners of thy ancestors: trace what thou wast, and what thou now art:—and say, are the savage tribes of Africa to be compared for barbarity with those Gauls whom Tacitus and Cæsar have described as covered with the skins of beasts, wanderers and vagabonds in the midst of their forests, living on the prey obtained by hunting, and armed with clubs and arrows; maintaining their idolatrous druids and offering human sacrifices; burning their children in osier baskets as holocausts devoted to their god Theutates; deifying the misletoe; plundering without pity the wretched foreigners cast by shipwreck on their shores, and unsparingly cutting the throats of their prisoners of war? (*De Vastey, a native of Hayti: Revue Encyclopédique, i. 534.*)

39.

Flattery is highly pernicious, especially to youth: for it originates in a base desire of interest, or in intellectual weakness; it retards improvement, paralyzes emulation, and extinguishes every motive to laudable exertion.

40.

The origin of anger is pride; and who can estimate the evil of that which flows from such a poisoned source?

# PROMISCUOUS SYLLOGISMS

FOR EXERCISE.

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## THIRD SERIES.

### *Hypothetical Syllogisms.*

1.

If fire may be separated from a flint, then a property may be separated from its subject ; but fire may be separated from a flint ; therefore a property may be separated from its subject.

2.

If hatred and malice are contrary to the divine law, they ought to be avoided ; but that they are so is too evident to be denied ; they ought therefore to be undoubtedly avoided.

3.

If the exercise of war in defence of our country were sinful, it would either expressly or by implication be forbidden in the Scripture ; but this is not the case ; and consequently we infer safely that it is not sinful.

4.

On important business it is proper to consult with others ; for if a man be wise and experienced, he is sensible that two heads are better than one ; and if he be an idiot, he should endeavour to make up his deficiency by the wisdom of others.

5.

The virtues are either passions, faculties, or habits : they are not passions ; for passions do not

gether new. My first question to the proposer of such general reformation, therefore, is, Which of these two modes have you in view? If the answer be, Restoration to what the House of Commons was in former times; I then request that the period may be specified at which the House of Commons was, according to the reformer, in the perfection to which he wishes to restore it. If, on the other hand, the answer be, that it is intended to re-construct the House on new principles: then, I think, it is not too much to ask that these principles be clearly defined, before we are required to take a single practical step towards the abolition of the existing frame of the House of Commons. (*Report of a speech in the House of Commons, Nov. 24, 1819.*)

## 14.

If the indulgence of an angry spirit renders us the scorn and sport of all about us; if it betrays us into irretrievable misconduct; if it occasions the forfeiture of the esteem of those friends whom we have most highly valued; if it becomes, on many accounts, the source of numerous and deep regrets; surely that disposition ought by every effort to be resisted and subdued.

## 15.

If benevolence were the whole of virtue, then in the review of our own character or that of others, our moral understanding and moral sense would be indifferent to every thing but the degrees in which benevolence prevailed; but this is far from being the case; for an act of injustice or treachery, though it should originate in a desire to benefit others, is still felt to be vicious and unjustifiable. Consequently virtue is by no means resolvable into benevolence.

THE END.

